

ATTACHEMENT: 10

DRY CREEK WRF

**LABORATORY
ANALYTICAL**

**VOLATILE SOLIDS %
(12 TIMES A YEAR)**

**TOTAL SOLIDS %
(12 TIMES A YEAR)**

2013



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 11/25/13
Date Received: 11/25/13
Sample Location: Zone E
Sample Matrix: Compost

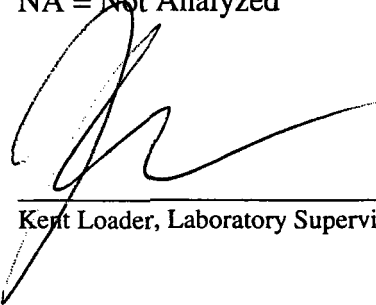
Sampled By: CB
Date Reported: 12/19/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 11/25/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	60.6	35.8	NA
2	65.7	33.0	NA
3	67.4	34.4	NA
4	65.9	39.5	NA
5	70.7	37.6	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

12.19.13

Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 11-25-13] Time: 11:15] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 11-25-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 11-25-13 | Time: 11:15 | ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 5 Date: 11-25-13 Time: 11:15 ☒ AM ☐ PM

Analytical Sample Containers

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. ** **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1 - 5 Date: 11-25-13 Time: 11:15 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barber Date/Time: 11-25-13/11:15 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Goch
This Certification is signed by: [Signature]

Date: 1-7-14] Time: 1] ☒ AM ☐ PM

Page 1 of 1

ID # WVGL-221311 Permit # WV B 660002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 11/25/13
Date Received: 11/25/13
Sample Location: Zone D
Sample Matrix: Compost

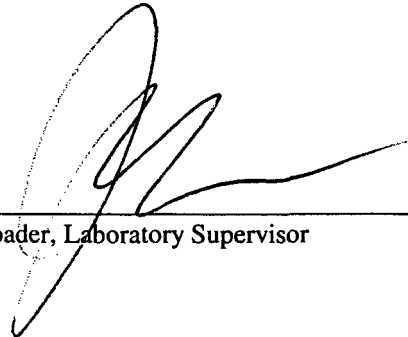
Sampled By: CB
Date Reported: 12/19/13
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EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	60.8	34.8	NA
2	62.0	37.4	NA
3	62.9	38.7	NA
4	59.7	40.9	NA
5	63.5	36.0	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

12-19-13

Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 11-25-13 **Time:** 11:15 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

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- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
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- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 11-25-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 11-25-13 | Time: 11:15 | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 11-25-13 Time: 11:15 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: 0 Rows: 1 - 5 Date: 11/25/14 Time: 11:15 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRP
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barber Date/Time: 11:25-13/11/15 AM

Analytical Certification

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"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRP
Address: 8911 - Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Logan
This Certification is signed by: [Signature]

Date: 1-7-14 | Time: 1 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Barber</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>Biosolids</u> <u>Zone D Rows 1-5</u>			Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED							How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)		
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time												
1 <u>Zone D Row 1</u>			<u>11-25-13</u>	<u>10:00 AM</u>	<u>Waste</u>	<u>11</u>	<u>11</u>	<u>11</u>	<u>11</u>	<u>11</u>	<u>11</u>	<u>11</u>	<u>11</u>	<u>11</u>	<u>11</u>	<u>11</u>
2 <u>2</u>																
3 <u>3</u>																
4 <u>4</u>																
5 <u>5</u>																
6																
7																
Custody Record MUST be Signed			Relinquished by: <u>Chet Barber</u>			Date/Time: <u>11-25-13</u>			Received by: <u>Mike Weber</u>					Date/Time: <u>11-25-13</u>		
			Sample Disposal: _____			Return to client: _____			Lab disposal: _____					Log# <u>754</u>		

ID # WY6-22734 Permit # WY6-66002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

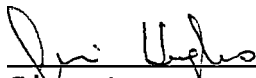
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 11/25/13
Date Received: 11/25/13
Sample Location: Zone C
Sample Matrix: Compost

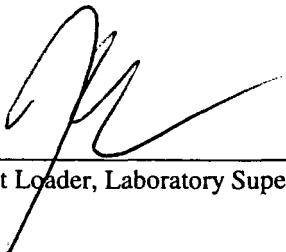
Sampled By: CB
Date Reported: 12/19/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 11/25/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
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5	73.8	44.0	NA
6	61.7	44.0	NA
7	70.4	53.6	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

12-19-13
Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 11-25-13] **Time:** 11:15] ☒ **AM** ☐ **PM**

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(Cheyenne BOPU) Dry Creek WRF Laboratory

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Date: 11-25-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

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Date: 11:25-13 | Time: 11:15 | ☒ AM ☐ PM

Analytical Records

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- ☐ Date and time of sample
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- ☐ Analytical results available
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Zone: C Rows: 1 - 7 Date: 11-25-13 Time: 11:15 ☒ AM ☐ PM

Analytical Sample Containers

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

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Zone: C Rows: 1 - 7 Date: 11-25-13 Time: 11:15 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRP
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Buben] Date/Time: 11-25-13/11:15 AM

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Name of Laboratory: Biosolids
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Jolly
This Certification is signed by: [Signature]

Date: 1-7-14] Time: 1] ☐ AM ☒ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Day Creek WRF</u>			Contact Name: <u>Chet Rankell</u>			Sampler's Name (if other than Contact): _____					
Report Required For: <u>Bioassay</u> <u>Zone C Row 1-7</u>			Number of Containers Sample Type A W S V B O Air <input checked="" type="checkbox"/> Water Soils/Solids <input type="checkbox"/> Vegetation <input type="checkbox"/> Bioassay <input checked="" type="checkbox"/> Other <input type="checkbox"/> MATRIX	ANALYSIS REQUESTED				How Preserved	Sample Type	Other Information	Analysis Completed
									HNO ₃ H ₂ SO ₄ 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time							
1	<u>Zone C Row 1</u>	<u>11-25</u> <u>13</u>	<u>10:00</u> <u>Am</u>	<u>Bioassay</u>	<u>MM</u>				<u>WYA</u>	<u>G</u>	
2	<u>2</u>										
3	<u>3</u>										
4	<u>4</u>										
5	<u>5</u>										
6	<u>6</u>										
7	<u>7</u>										
Custody Record MUST be Signed		Relinquished by: <u>Chet Rankell</u>		Date/Time: <u>11-25-13</u> <u>11:15 Am</u>		Received by: <u>T. [Signature]</u>			Date/Time: <u>11-25-13</u> <u>11:00</u>		
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____		Log# <u>753</u>			

ID # WY 92-229311 Permit # WY 6-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

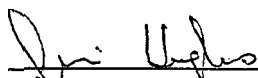
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 11/25/13
Date Received: 11/25/13
Sample Location: Zone A
Sample Matrix: Compost

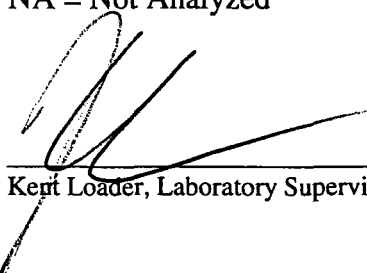
Sampled By: CB
Date Reported: 12/19/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 11/25/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

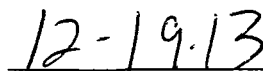
Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	74.7	20.9	NA
2	73.9	24.1	NA
3	62.8	29.8	NA
4	64.2	39.2	NA
5	58.1	32.1	NA
6	56.6	35.1	NA
7	63.1	33.3	NA
8	57.6	47.5	NA
9	58.9	46.6	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 11-25-13 | Time: 11:15 | ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 11-25-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 11:25-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 11-25-13 Time: 11:15 ☒ AM ☐ PM

Analytical Sample Containers

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: 1 Rows: 1 - 9 Date: 11/25/13 Time: 11:15 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Benkum [Date/Time: 11/25-13/11:15 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Load
This Certification is signed by: [Signature]

Date: 1-7-14 | Time: 1 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>D. J. Creek WRF</u>			Contact Name: <u>Chet P. ...</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>Yucca / AS Zone A Rows 1-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)		
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time												
1	<u>Zone A Row 1</u>		<u>11-25-13</u>	<u>10:00 AM</u>	<u>1 Plastic Bag</u>	<u>✓</u>	<u>✓</u>							<u>N/A</u>	<u>G</u>	
2	<u>2</u>					<u>✓</u>	<u>✓</u>									
3	<u>3</u>					<u>✓</u>	<u>✓</u>									
4	<u>4</u>					<u>✓</u>	<u>✓</u>									
5	<u>5</u>					<u>✓</u>	<u>✓</u>									
6	<u>6</u>					<u>✓</u>	<u>✓</u>									
7	<u>7</u>		<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>							<u>✓</u>	<u>✓</u>	
Custody Record MUST be Signed			Relinquished by: <u>Chet P. ...</u>		Date/Time: <u>11-25-13</u> <u>11:15 AM</u>		Received by: <u>[Signature]</u>						Date/Time: <u>11/25/13</u>			
			Sample Disposal: _____ Return to client: _____ Lab disposal: _____										Log# <u>751</u>			

ID # WYCL-22170

Permit # WY 6-650002

Copies to: **White** - Book in Laboratory **Yellow** - Laboratory Hard Copy **Pink** - Client

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Art Barker</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Biological</u> <u>Zone A Rows 8-9</u>			Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time									
1 <u>Zoned Rows 8</u>		<u>11-25-13</u>	<u>10:00 AM</u>	<u>13</u>	<u>13</u>					<u>13A</u>	<u>G</u>	
2 <u>1. 1. 1. 9</u>		<u>1.</u>		<u>1</u>	<u>1</u>					<u>1.</u>	<u>1</u>	
3												
4												
5												
6												
7												
Custody Record MUST be Signed	Relinquished by: <u>Art Barker</u>		Date/Time: <u>11-25-13</u> <u>11:15 AM</u>		Received by: <u>Michael</u>					Date/Time: <u>11-25-13</u> <u>1:00 PM</u>		
	Sample Disposal: _____		Return to client: _____		Lab disposal: _____					Log# <u>752</u>		

ID # WYSL-22934

Permit # WYSL-660002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

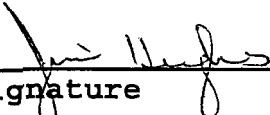
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

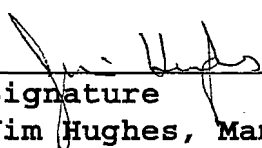
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = $\frac{VS \text{ in} - VS \text{ out}}{VS \text{ in} - (VS \text{ in} * VS \text{ out})}$) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

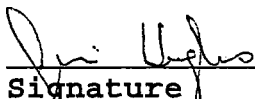
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

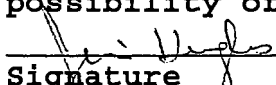
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 09/25/13
Date Received: 09/25/13
Sample Location: Zone E
Sample Matrix: Compost

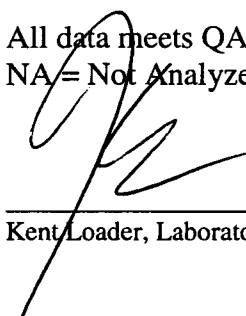
Sampled By: CB
Date Reported: 10/15/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 10/02/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	68.4	32.3	NA
2	72.9	32.4	NA
3	73.3	33.6	NA
4	63.4	33.0	NA
5	62.8	30.8	NA
6	66.1	33.2	NA
7	59.3	30.7	NA
8	55.4	29.9	NA
9	66.8	36.4	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

10.24.13
Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 9-25-13] Time: 11:30] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 9-25-13] Time: 11:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 9-25-13] Time: 11:30] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 7 Date: 9-25-13 Time: 11:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

CB
9-25-13

Zone: E Rows: 1 - 7 Date: 11-30 Time: 11:30 ☐ AM ☒ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Baskin [Date/Time: 9-25-13 / 11:30 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Load
This Certification is signed by: [Signature]

Date: 10-29-13 | Time: 8 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>D. J. COOK WRF</u>			Contact Name: <u>Chet Barber</u>			Sampler's Name (if other than Contact): _____								
Report Required For: <u>Bioassay</u> <u>Zone E Row 1-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time									
1	<u>Zone E Row 1</u>			<u>7-25</u>	<u>10:40 A.M.</u>	<u>10:40 A.M.</u>						<u>Grab</u>		
2	<u>2</u>													
3	<u>3</u>													
4	<u>4</u>													
5	<u>5</u>													
6	<u>6</u>													
7	<u>7</u>													
Custody Record MUST be Signed				Relinquished by: <u>Chet Barber</u>		Date/Time: <u>7-25-83</u>		Received by: <u>Alvin</u>				Date/Time: <u>7/25/83</u>		
						<u>11:30 A.M.</u>						<u>1:00 P.M.</u>		
Sample Disposal: _____				Return to client: _____				Lab disposal: _____				Log# <u>750</u>		

ID # 66451-22931

Permit # 1246-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Pat Kelly</u>			Sampler's Name (if other than Contact): _____									
Report Required For: <u>Biosolids</u> <u>2015 Rows 8-9</u>				Number of Containers Sample Type A W S V B O Air <input checked="" type="checkbox"/> Water Soils/Solids <input type="checkbox"/> Vegetation <input type="checkbox"/> Bioassay <input type="checkbox"/> Other MATRIX <input type="checkbox"/>	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time											
1 <u>2015 Rows 8</u>			<u>9-25-13</u>	<u>10:40 AM</u>	<u>1 Plastic Bag</u>						<u>MR</u>	<u>G</u>			
2 <u>1 ↓ ↓ 9</u>			<u>↓</u>	<u>↓</u>	<u>↓ ↓ ↓</u>							<u>↓</u>			
3															
4															
5															
6															
7															
Custody Record MUST be Signed			Relinquished by: <u>Pat Kelly</u>		Date/Time: <u>9-25-13</u> <u>11:30 AM</u>		Received by: <u>Michael</u>				Date/Time: <u>9-25-13</u> <u>11:00 AM</u>				
			Sample Disposal: _____		Return to client: _____		Lab disposal: _____		Log# <u>751</u>						

ID # WY 22934

Permit # WY G-660002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

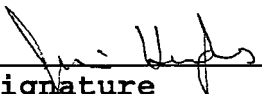
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - ((\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

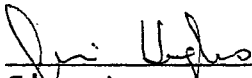
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

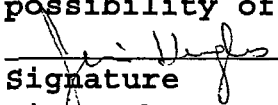
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 09/25/13
Date Received: 09/25/13
Sample Location: Zone D
Sample Matrix: Compost

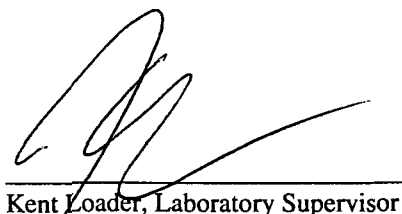
Sampled By: CB
Date Reported: 10/29/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 10/02/13
Analyst(s): mw

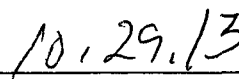
EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	59.0	40.5	NA
2	97.3	57.0	NA
3	67.0	37.8	NA
4	56.1	39.6	NA
5	67.8	35.3	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor


Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 9-25-13 **Time:** 11:30 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 9-25-13] Time: 11:30] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 9-25-13] Time: 11:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 9-25-13 Time: 11:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: D Rows: 1 - 5 Date: 9-25-13 Time: 11:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Baubert | Date/Time: 9-26-13 / 11:30 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: [Signature]

Date: 10-31-13 | Time: 9 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>D. V. COOK WRF</u>				Contact Name: <u>Chot Baidell</u>				Sampler's Name (if other than Contact): _____												
Report Required For: <u>Biosolids</u> <u>Zone D - Rows 1-5</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div> HNO₃ H₂SO₄ 4°C HCL None </div> <div> Grab or Composite </div> <div> (pH, Field Analysis, etc.) </div> <div> Yes / No (Lab use only) </div> </div>				How Preserved	Sample Type	Other Information	Analysis Completed								
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time																	
1	<u>Zone D Row 1</u>	<u>7-2-13</u>	<u>10:40 AM</u>	<u>18 mg/L</u>	<u>13</u>	<u>13</u>														
2	<u>2</u>	<u>7-2-13</u>		<u>13</u>	<u>13</u>															
3	<u>3</u>			<u>13</u>	<u>13</u>															
4	<u>4</u>			<u>13</u>	<u>13</u>															
5	<u>5</u>			<u>13</u>	<u>13</u>															
6																				
7																				
Custody Record MUST be Signed		Relinquished by: <u>Chot Baidell</u>		Date/Time: <u>7-25-13</u> <u>11:30 AM</u>		Received by: <u>Mike W.</u>				Date/Time: <u>7-25-13</u> <u>11:30</u>										
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____				Log# <u>719</u>										

ID # WY 1-22934

Permit # WY 1-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

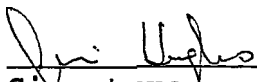
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

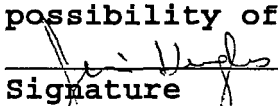
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 09/25/13
Date Received: 09/25/13
Sample Location: Zone C
Sample Matrix: Compost

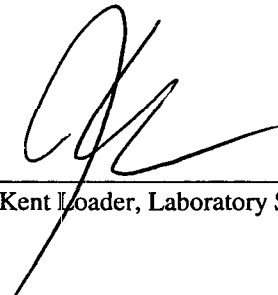
Sampled By: CB
Date Reported: 10/15/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 10/02/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	68.5	33.5	NA
2	82.7	27.1	NA
3	71.9	29.7	NA
4	64.9	33.7	NA
5	67.9	35.0	NA
6	59.4	37.6	NA
7	57.0	41.4	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

10-24-13

Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 9-25-13] Time: 11:30] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 9-25-13] Time: 11:30] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ **Date and time of samples analysis**

☐ **Name of analyst**

☐ **All analyses are reported on dry weight basis**

☐ **Dry Creek WRF Laboratory**

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ **Analytical quality assurance/quality control (QA/QC) available**

☐ **Analytical results available**

☐ **Chain of custody record**

Date: 9-25-13] Time: 11:30] ☒ **AM** ☐ **PM**

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 9-25-13 Time: 11:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 9-25-73 Time: 11:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Burkett [Date/Time: 9-25-13/11:30 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Jacob
This Certification is signed by: [Signature]

Date: 10-29-13 | Time: 8 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 11 of 1

Client's Name: <u>Dave Cook WRF</u>			Contact Name: <u>Chit Phipps</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>1.030115</u> <u>Zone C - Row 1-7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1 <u>Zone C Row 1</u>			<u>9-25-13</u>	<u>11:30 AM</u>	<u>1.030115</u>					<u>WA</u>	<u>Grab</u>	
2												
3												
4												
5												
6												
7												
Custody Record MUST be Signed			Relinquished by: <u>Chit Phipps</u>		Date/Time: <u>9-25-13</u> <u>11:30 AM</u>		Received by: <u>Chit Phipps</u>			Date/Time: <u>9-25-13</u> <u>11:30 AM</u>		
			Sample Disposal: _____		Return to client: _____		Lab disposal: _____		Log# <u>718</u>			

ID # WRF-22734

Permit # WRF-61002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.


Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

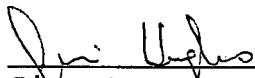
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

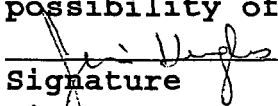
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 09/25/13
Date Received: 09/25/13
Sample Location: Zone A
Sample Matrix: Compost

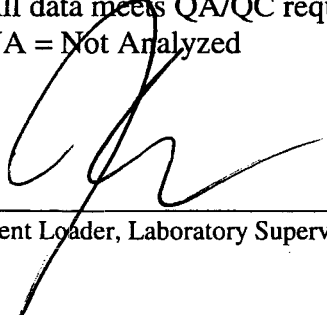
Sampled By: CB
Date Reported: 10/15/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 10/02/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	76.2	25.0	NA
2	67.0	24.7	NA
3	68.4	27.1	NA
4	67.3	40.4	NA
5	69.4	28.0	NA
6	62.3	37.3	NA
7	60.8	35.9	NA
8	61.1	51.2	NA
9	63.2	53.4	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

10.24.13

Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 9-25-13] Time: 11:30] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 9-25-13] Time: 11:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 9-25-13 | Time: 11:30 | ☐ AM ☒ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 9-25-13 Time: 11:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: A Rows: 1 - 9 Date: 9-25-13 Time: 11:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barber [Date/Time: 9-25-13/11:30 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Spake
This Certification is signed by: [Signature]

Date: 10-29-13 | Time: 9 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dwy Creek WRF</u>			Contact Name: <u>John R. Hurd</u>			Sampler's Name (if other than Contact): _____								
Report Required For: <u>Biosolids</u> <u>Zone A Rows 1-7</u>			Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time										
1 <u>Zone A Row 1</u>			<u>9-25-13</u>	<u>10:00 AM</u>	<u>TS</u>	<u>SS</u>						<u>N/A</u>	<u>Grab</u>	
2														
3														
4														
5														
6														
7														
Custody Record MUST be Signed			Relinquished by: <u>John R. Hurd</u>		Date/Time: <u>9-25-13</u> <u>11:30 AM</u>		Received by: <u>Mike Wal</u>				Date/Time: <u>9-25-13</u> <u>11:30 AM</u>			
			Sample Disposal: _____		Return to client: _____		Lab disposal: _____		Log# <u>716</u>					

ID # 201304

Permit # 201304

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Page 2 of 2

ID # 10701-7204 Permit # 10701-65002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

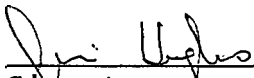
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 07/09/13
Date Received: 07/09/13
Sample Location: Zone E
Sample Matrix: Compost

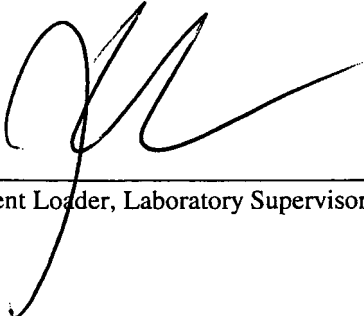
Sampled By: CB
Date Reported: 08/07/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 07/11/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	90.1	36.1	NA
2	88.6	37.0	NA
3	91.8	42.4	NA
4	87.8	36.1	NA
5	86.7	38.3	NA
6	89.1	40.9	NA
7	91.2	41.0	NA
8	90.4	31.3	NA
9	85.7	43.7	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor


Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 7-9-13] Time: 10:30] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 7-9-13] Time: 10:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 7-9-13] Time: 10:30] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 7 Date: 7-9-13 Time: 10:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1 - 7 Date: 7-9-13 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Bubba] Date/Time: 7-9-13/10:30am

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent
This Certification is signed by: [Signature]

Date: 7-29-13] Time: 8 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Day Creek WRT</u>				Contact Name: <u>Chit</u>				Sampler's Name (if other than Contact): <u>Burke</u>			
Report Required For: <u>Biosolids Zone E</u> <u>Rows 1-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX				ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="width: 20%;"> HNO₃ H₂SO₄ 4°C HCL None </div> <div style="width: 20%;"> Grab or Composite </div> <div style="width: 20%;"> (pH, Field Analysis, etc.) </div> <div style="width: 20%;"> Yes / No (Lab use only) </div> </div>			
1 <u>Zone E Row 1</u>				7-9-13		9:45 AM		MA Grab			
2											
3											
4											
5											
6											
7											
Custody Record MUST be Signed				Relinquished by: <u>Chit</u>				Date/Time: <u>7-9-13 10:30 AM</u>			
				Received by: <u>[Signature]</u>				Date/Time: <u>7-9-13 11:07 AM</u>			
Sample Disposal: _____				Return to client: _____				Lab disposal: _____			
								Log# <u>727</u>			

ID # WYSL-22934 Permit # WY 6-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Box Creek WRF</u>			Contact Name: <u>Chet Barber</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Biosolids E</u> <u>Zone E Rows 8-9</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1 <u>Zone E Row 8</u>			<u>7-9</u>	<u>9:15 AM</u>	<u>10/12/13</u>					<u>W+</u>	<u>G</u>	
2 <u>↓ ↓ ↓ 9</u>			<u>↓</u>	<u>↓</u>	<u>↓</u>					<u>↓</u>	<u>↓</u>	
3			<u>↓</u>									
4												
5												
6												
7												
Custody Record MUST be Signed			Relinquished by:		Date/Time:		Received by:			Date/Time:		
			<u>Chet Barber</u>		<u>7-9-13</u> <u>10:30 AM</u>		<u>[Signature]</u>			<u>7-9-13</u> <u>11:12 AM</u>		
Sample Disposal:			Return to client:			Lab disposal:			Log# <u>728</u>			

ID # WYSL-22934 Permit # WY6-660002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

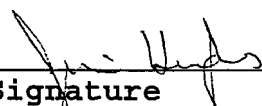
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ($\text{Vol. Solids Reduction} = \frac{\text{VS in} - \text{VS out}}{\text{VS in} - (\text{VS in} * \text{VS out})}$) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

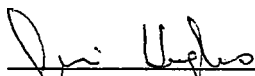
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature
Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 07/09/13
Date Received: 07/09/13
Sample Location: Zone D
Sample Matrix: Compost

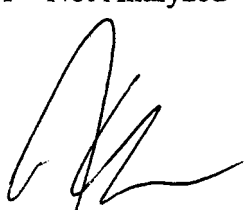
Sampled By: CB
Date Reported: 08/07/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 07/11/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	83.9	38.5	NA
2	87.3	39.4	NA
3	84.3	42.6	NA
4	92.3	37.8	NA
5	89.7	46.6	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 7-9-13] Time: 10:30] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 7-9-13 | Time: 10:30 | ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 7-9-13 Time: 10:30 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 7-9-13] Time: 10:30] ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

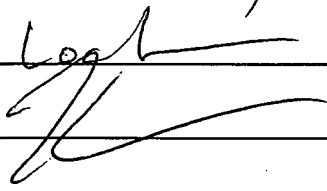
Zone: 0 Rows: 1 - 5 Date: 7-9-13 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Babul | Date/Time: 7-19-13 / 10:30 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Logg
This Certification is signed by: 

Date: 10-29-13 | Time: 8 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>				Contact Name: <u>Chet Barbull</u>				Sampler's Name (if other than Contact): _____				
Report Required For: <u>Biosolids</u> <u>Zone D Rows 1-5</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="width: 20%;"> How Preserved HNO₃ H₂SO₄ 4°C HCL None </div> <div style="width: 20%;"> Sample Type Grab or Composite </div> <div style="width: 20%;"> Other Information (pH, Field Analysis, etc.) </div> <div style="width: 20%;"> Analysis Completed Yes / No (Lab use only) </div> </div>							
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time									
1 <u>Zone D Row 1</u>		<u>7-9-13</u>	<u>9:45 AM</u>	<div style="display: flex; justify-content: space-between;"> <div style="width: 20%;"> <u>Plastic Bag</u> </div> <div style="width: 20%;"> <u>None</u> </div> <div style="width: 20%;"> <u>Grab</u> </div> <div style="width: 20%;"> </div> </div>								
2												
3												
4												
5												
6												
7												
Custody Record MUST be Signed	Relinquished by: <u>Chet Barbull</u>			Date/Time: <u>7-9-13 10:30 AM</u>		Received by: <u>[Signature]</u>			Date/Time: <u>7-9-13 11:00 AM</u>			
	Sample Disposal: _____			Return to client: _____			Lab disposal: _____			Log# <u>725</u>		

ID # WYCL-22934

Permit # WYCL-660002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

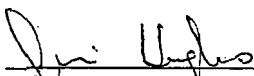
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

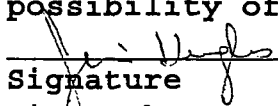
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 07/09/13
Date Received: 07/09/13
Sample Location: Zone C
Sample Matrix: Compost

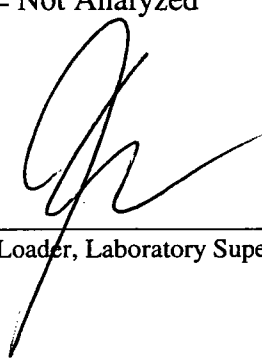
Sampled By: CB
Date Reported: 08/07/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 07/11/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	82.8	41.2	NA
2	91.1	31.6	NA
3	92.9	29.6	NA
4	88.8	49.5	NA
5	91.9	33.3	NA
6	89.0	50.0	NA
7	85.1	51.0	NA

Comments:

- All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
- NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 7-9-13] Time: 10:30] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 7-9-13 | Time: 10:30 | ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 7-9-13] Time: 10130] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 7-9-13 Time: 10:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

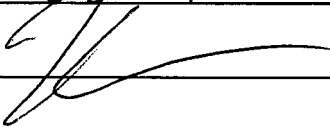
Zone: C Rows: 1 - 7 Date: 7-9-13 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRI
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Bahall [Date/Time: 7-9-13/10:30 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRI
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: 

Date: 10.29.13 | Time: 8 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>				Contact Name: <u>Chet Barber</u>				Sampler's Name (if other than Contact): _____											
Report Required For: <u>BioSolids</u> <u>Zone C Rows 1-7</u>				Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="width: 15%;"> <input type="checkbox"/> HNO₃ <input type="checkbox"/> H₂SO₄ <input type="checkbox"/> 4°C <input type="checkbox"/> HCL <input type="checkbox"/> None </div> <div style="width: 15%;"> <input type="checkbox"/> Grab <input type="checkbox"/> or <input type="checkbox"/> Composite </div> <div style="width: 15%;"> <input type="checkbox"/> pH <input type="checkbox"/> Field Analysis <input type="checkbox"/> etc. </div> <div style="width: 15%;"> <input type="checkbox"/> Yes / No (Lab use only) </div> </div>						How Preserved		Sample Type		Other Information (pH, Field Analysis, etc.)		Analysis Completed		
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date		Collection Time													
1 <u>Zone C Row 1</u>				7-9-13		9:45 AM		18% Solids Grab											
2																			
3																			
4																			
5																			
6																			
7																			
Custody Record MUST be Signed				Relinquished by: <u>Chet Barber</u>				Date/Time: <u>7-9-13 10:30 AM</u>				Received by: <u>[Signature]</u>				Date/Time: <u>7-9-13 12:09 PM</u>			
				Sample Disposal: _____				Return to client: _____				Lab disposal: _____				Log# <u>725</u>			

ID # 10452-229311 Permit # 10452-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

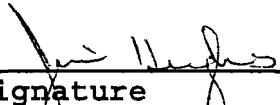
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.


Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

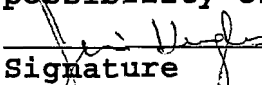
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 07/09/13
Date Received: 07/09/13
Sample Location: Zone A
Sample Matrix: Compost

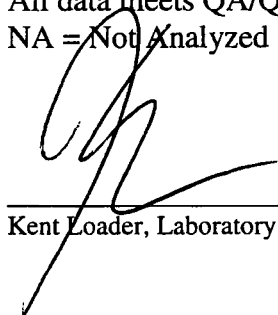
Sampled By: CB
Date Reported: 08/07/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 07/11/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	90.0	24.8	NA
2	88.2	26.3	NA
3	86.8	30.4	NA
4	85.9	55.9	NA
5	85.6	38.6	NA
6	75.2	47.8	NA
7	85.3	39.8	NA
8	89.4	53.6	NA
9	86.4	61.4	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 7-9-13] Time: 10:30] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 7-9-13] Time: 10:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 7-9-13 Time: 10:30 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1-4 Date: 7-9-13 Time: 10:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record


Zone: A Rows: 1 - 9 Date: 7-9-13 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barbull [Date/Time: 7-9-13 / 10:30 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Logghe
This Certification is signed by: 

Date: 10-29-13] Time: 8 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>City of Cheyenne</u> Contact Name: <u>Chet Bardwell</u> Sampler's Name (if other than Contact): _____																																																																																																																																																										
Report Required For: <u>Biosolids Zone A</u> <u>Rows 1-7</u>			Number of Containers Sample Type A W S V B O Air <input type="checkbox"/> Water <input type="checkbox"/> Soils/Solids <input type="checkbox"/> Vegetation <input type="checkbox"/> Bioassay <input type="checkbox"/> Other <input type="checkbox"/> MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="width: 15%;"> How Preserved HNO₃ H₂SO₄ 4°C HCL None </div> <div style="width: 15%;"> Sample Type Grab or Composite </div> <div style="width: 20%;"> Other Information (pH, Field Analysis, etc.) </div> <div style="width: 20%;"> Analysis Completed Yes / No (Lab use only) </div> </div>																																																																																																																																																						
			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">SAMPLE IDENTIFICATION (Name, Location, etc.)</th> <th>Collection Date</th> <th>Collection Time</th> <th colspan="10">ANALYSIS REQUESTED</th> <th>How Preserved</th> <th>Sample Type</th> <th>Other Information</th> <th>Analysis Completed</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Zone A Row 1</td> <td>7-1-13</td> <td>7:45 AM</td> <td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td> </tr> <tr><td>2</td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>				SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time	ANALYSIS REQUESTED										How Preserved	Sample Type	Other Information	Analysis Completed	1	Zone A Row 1	7-1-13	7:45 AM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2																		3	3																		4	4																		5	5																		6	6																		7	7														
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Custody Record MUST be Signed		Relinquished by: <u>Chet Bardwell</u>		Date/Time: <u>7-1-13 10:30 AM</u>		Received by: <u>[Signature]</u>		Date/Time: <u>7-1-13 10:30 AM</u>																																																																																																																																																		
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____		Log# <u>723</u>																																																																																																																																																		

ID # 1-475-22311 Permit # 1046-650004

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Barden</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>Biosolids</u> <u>Zone A Rows 8-9</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time													
1	<u>Zone A Row 8</u>	<u>7-4-13</u>	<u>9:45 AM</u>	<u>1 Biosolids Sample</u>												
2	<u>↓ ↓ ↓ 9</u>	<u>↓</u>	<u>↓</u>	<u>↓ ↓</u>												
3		<u>↓</u>														
4																
5																
6																
7																
Custody Record MUST be Signed		Relinquished by:		Date/Time:		Received by:						Date/Time:				
		<u>Chet Barden</u>		<u>7-4-13 10:30 AM</u>		<u>[Signature]</u>						<u>7-4-13 11:00 AM</u>				
		Sample Disposal:		Return to client:		Lab disposal:						Log# <u>724</u>				

ID # WVSL-229311

Permit # WVG-650002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - ((VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

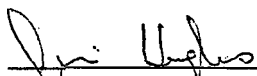
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

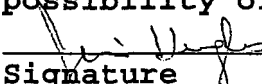
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 05/14/13
Date Received: 05/14/13
Sample Location: Zone E
Sample Matrix: Compost

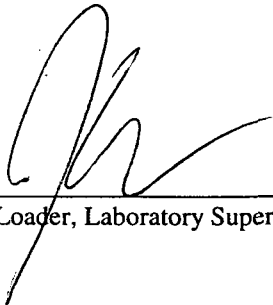
Sampled By: CB
Date Reported: 06/07/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 05/15/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	84.4	42.7	NA
2	86.5	39.5	NA
3	85.6	45.4	NA
4	83.3	47.0	NA
5	88.7	39.6	NA
6	78.6	42.4	NA
7	87.8	39.7	NA
8	86.6	42.4	NA
9	86.7	46.7	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

6-7-13
Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 5-14-13 **Time:** 9:35 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 5-14-13] Time: 9:35] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 5-14-13 | Time: 9:35- | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 9 Date: 5-14-13 Time: 9:35 ☐ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1-9 Date: 5-14-11 Time: 9:35 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstal Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chad Baker | Date/Time: 5-14-13/9:35 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstal Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: KC
This Certification is signed by: [Signature]

Date: 6-28-13 | Time: 11 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>				Contact Name: <u>Let Baudel</u>				Sampler's Name (if other than Contact): _____						
Report Required For: <u>Biosolids</u> <u>Zone E Rows 1-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="width: 20%;"> HNO₃ H₂SO₄ 4°C HCL None </div> <div style="width: 20%;"> Grab or Composite </div> <div style="width: 20%;"> (pH, Field Analysis, etc.) </div> <div style="width: 20%;"> Yes / No (Lab use only) </div> </div>				How Preserved	Sample Type	Other Information	Analysis Completed		
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time											
1	<u>Zone E Row 1</u>	<u>5-14-13</u>	<u>8:50 AM</u>	<u>18 Plastic Bags</u>							<u>MA</u>	<u>Grab</u>		
2	<u>2</u>			<u>5 bags</u>										
3	<u>3</u>													
4	<u>4</u>													
5	<u>5</u>													
6	<u>6</u>													
7	<u>7</u>													
Custody Record MUST be Signed		Relinquished by:		Date/Time:		Received by:				Date/Time:				
		<u>Let Baudel</u>		<u>5-14-13 9:35 AM</u>		<u>Mike W</u>				<u>10:00 AM</u>				
Sample Disposal:		Return to client:		Lab disposal:				Log#				705		

ID # WYGL-22134 Permit # WY G-660002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Hot Rodden</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>Biosolids</u> <u>Zone E Rows - 8-9</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED							How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time													
1 <u>Zone E Row 8</u>		<u>5-14-13</u>	<u>8:00 AM</u>	<u>1814510</u>												
2 <u>↓ E ↓ 9</u>		<u>↓</u>	<u>↓</u>	<u>Study</u>												
3		<u>↓</u>	<u>↓</u>	<u>↓</u>												
4																
5																
6																
7																
Custody Record MUST be Signed		Relinquished by:		Date/Time:		Received by:						Date/Time:				
		<u>Hot Rodden</u>		<u>5-14-13</u> <u>9:35 AM</u>		<u>Mike Ward</u>						<u>7:06</u>				
		Sample Disposal:		Return to client:		Lab disposal:						Log# <u>706</u>				

ID # 11151-22934

Permit # 11151-650002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

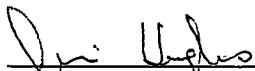
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

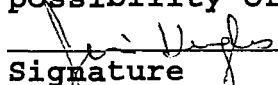
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 05/14/13
Date Received: 05/14/13
Sample Location: Zone D
Sample Matrix: Compost

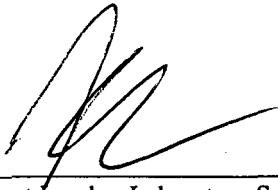
Sampled By: CB
Date Reported: 06/07/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 05/15/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	88.1	39.9	NA
2	85.0	44.7	NA
3	83.0	44.5	NA
4	88.2	46.8	NA
5	85.9	47.1	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 5-14-13 **Time:** 9:35 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 5-14-13] Time: 9:35] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 5-14-13 | Time: 9:35 | ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1-5 Date: 5-14-13 Time: 9:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: D Rows: 1-5 Date: 5-14-13 ^{CB}
9:35 Time: 9:35 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Astor Rd
City: Cheyenne | State: Wyo | Zip Code: 82007
Samples Collected by: Chet Badu | Date/Time: 5-14-13/9:35 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Astor Rd
City: Cheyenne | State: Wyo | Zip Code: 82007
Name of Analyst: KL
This Certification is signed by: [Signature]

Date: 6-28-13 | Time: 11 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>				Contact Name: <u>Chet Brubaker</u>				Sampler's Name (if other than Contact): _____								
Report Required For: <u>Bioassays</u> <u>Zone D - Rows 1-5</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="width: 15%;"> <input type="checkbox"/> HNO₃ <input type="checkbox"/> H₂SO₄ <input type="checkbox"/> 4°C <input type="checkbox"/> HCL <input type="checkbox"/> None </div> <div style="width: 15%;"> <input type="checkbox"/> Grab <input type="checkbox"/> or <input type="checkbox"/> Composite </div> <div style="width: 15%;"> <input type="checkbox"/> pH <input type="checkbox"/> Field Analysis <input type="checkbox"/> etc.) </div> <div style="width: 15%;"> <input type="checkbox"/> Yes / No (Lab use only) </div> </div>				Other Information (pH, Field Analysis, etc.)				Analysis Completed Yes / No (Lab use only)			
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time											
1 <u>Zone D Row 1</u>				<u>5-14</u>	<u>8:30</u>	<u>101551C</u>				<u>NYA</u>						
2				<u>13</u>	<u>1 AM</u>	<u>101551C</u>				<u>Grab</u>						
3																
4																
5																
6																
7																
Custody Record MUST be Signed				Relinquished by: <u>Chet Brubaker</u>				Date/Time: <u>5-14-13</u> <u>9:35 AM</u>				Received by: <u>[Signature]</u>				
				Date/Time: <u>10/15</u>												
Sample Disposal:				Return to client:				Lab disposal:				Log# <u>704</u>				

ID # W-146-227311 Permit # W-146-650002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.


Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

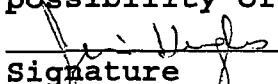
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 05/14/13
Date Received: 05/14/13
Sample Location: Zone C
Sample Matrix: Compost

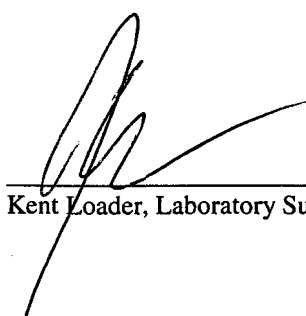
Sampled By: CB
Date Reported: 06/07/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 05/15/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	77.3	40.0	NA
2	77.2	41.1	NA
3	76.1	40.9	NA
4	84.4	51.8	NA
5	86.2	53.1	NA
6	83.2	55.4	NA
7	83.9	54.2	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

6-7-13
Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 5-14-13 **Time:** 9:35 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 5-14-13 | Time: 9:35 | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 5-14-13] Time: 9:35] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 5-14-13 Time: 9:35 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. ** **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 5-14-13 Time: 9:35 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chad Barber | Date/Time: 5-14-13/9:35 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 6-28-13 | Time: 11:30 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Ballard</u>			Sampler's Name (if other than Contact): _____					
Report Required For: <u>Biosolids</u> <u>Zone CRI-7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED				How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time								
1 <u>Zone C Row 1</u>		<u>5-14</u>	<u>9:50 AM</u>	<u>1 plastic bag many solids</u>							
2											
3											
4											
5											
6											
7											
Custody Record MUST be Signed	Relinquished by:		Date/Time:		Received by:				Date/Time:		
	<u>Chet Ballard</u>		<u>5-14-13</u> <u>9:35 AM</u>		<u>[Signature]</u>				<u>7/17/13</u> <u>2950</u>		
Sample Disposal:		Return to client:		Lab disposal:				Log# <u>703</u>			

ID # WY51-2234 Permit # WY51-65002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

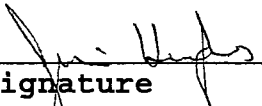
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

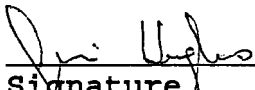
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 03/29/13
Date Received: 03/29/13
Sample Location: Zone E
Sample Matrix: Compost

Sampled By: CB
Date Reported: 04/10/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 04/10/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	86.2	41.5	NA
2	86.0	39.2	NA
3	82.7	45.6	NA
4	87.4	39.9	NA
5	88.6	34.3	NA
6	84.3	41.3	NA
7	89.4	33.4	NA
8	88.8	37.3	NA
9	84.4	42.4	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

4.10.13
Date:

Dry Creek WRF Laboratory
For TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 3-29-13 | **Time:** 1:30 | ☐ AM ☒ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 3-29-13] Time: 1:30] ☐ AM ☒ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 3-29-13] Time: 1130] ☐ AM ☒ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1-9 Date: 3-29-13 Time: 1:30 ☐ AM ☒ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1 - 9 Date: 3-29-13 Time: 11:30 ☐ AM ☒ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barker | [Date/Time: 3-29-13 / 4:30 PM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: MC
This Certification is signed by: [Signature]

Date: 6-28-13 | Time: 0800 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Barber</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Biosolids</u> <u>Zone E 1-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED				How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time									
1	<u>Zone E Row 1</u>	<u>3-29-13</u>	<u>12:30 PM</u>	<u>1 plastic bag</u>	<u>✓</u>	<u>✓</u>				<u>NA</u>	<u>Grab</u>	
2	<u>2</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>				<u>✓</u>	<u>✓</u>	
3	<u>3</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>				<u>✓</u>	<u>✓</u>	
4	<u>4</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>				<u>✓</u>	<u>✓</u>	
5	<u>5</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>				<u>✓</u>	<u>✓</u>	
6	<u>6</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>				<u>✓</u>	<u>✓</u>	
7	<u>7</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>				<u>✓</u>	<u>✓</u>	
Custody Record MUST be Signed		Relinquished by:		Date/Time:		Received by:				Date/Time:		
		<u>Chet Barber</u>		<u>3-29-13</u> <u>1:30 PM</u>		<u>[Signature]</u>				<u>3/29/13</u>		
		Sample Disposal:		Return to client:		Lab disposal:				Log# <u>685</u>		

ID # WYSL 22934 Permit # WY G-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Barker</u>			Sampler's Name (if other than Contact): _____													
Report Required For: <u>Biosolids</u> <u>Zone E Zone 8-9</u>					Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED							How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)			
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time															
1	<u>Zone E Row 8</u>		<u>3-24-13</u>	<u>12:30 PM</u>	<u>18 gal HL Biosolids</u>														
2	<u>↓ ↓ ↓ 9</u>		<u>↓</u>	<u>↓</u>	<u>↓</u>														
3																			
4																			
5																			
6																			
7																			
Custody Record MUST be Signed	Relinquished by:				Date/Time:				Received by:						Date/Time:				
	<u>Chet Barker</u>				<u>3-24-13 1:30 PM</u>				<u>[Signature]</u>						<u>3/27/13</u>				
Sample Disposal:			Return to client:			Lab disposal:			Log# <u>685</u>										

ID # WYSL 22934 Permit # WY R 050002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

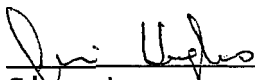
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 03/29/13
Date Received: 03/29/13
Sample Location: Zone D
Sample Matrix: Compost

Sampled By: CB
Date Reported: 04/10/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 04/01/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	84.5	40.6	NA
2	86.4	39.9	NA
3	85.4	44.4	NA
4	85.9	36.4	NA
5	86.6	41.8	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed

Kent Loader, Laboratory Supervisor

4.10.13
Date:

Dry Creek WRF Laboratory
For TS & VS

Identification Reporting: No. WYSL - 22934

Permit No. WYG - 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 3-29-13 **Time:** ^{1:30 CB} ~~3-29~~ ☐ AM ☒ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 3-29-13] Time: 10:30] ☐ AM ☒ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 3-29-13] Time: 1430] ☐ AM ☒ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 3-29-13 Time: 1:30 ☐ AM ☒ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

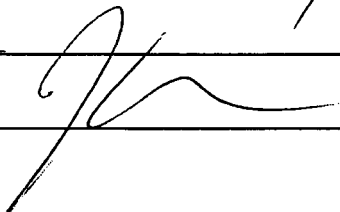
Zone: 0 Rows: 1-5 Date: 3-29-13 Time: 1:30 ☐ AM ☒ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Babal | Date/Time: 3-29-13 / 1:30pm

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: KL
This Certification is signed by: 

Date: 6-28-13 | Time: 0800 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name <u>Dry Creek WLF</u>			Contact Name: <u>Chet Barker</u>			Sampler's Name (if other than Contact): _____							
Report Required For: <u>Biosolids</u> <u>Zone D Row 1-5</u>			Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time									
1	<u>Zone D Row 1</u>		<u>3-29-13</u>	<u>12:30 PM</u>	<u>Plastic Bagged</u>	<u>✓</u>	<u>✓</u>				<u>N/A</u>	<u>Grab</u>	
2	<u>2</u>					<u>✓</u>	<u>✓</u>						
3	<u>3</u>					<u>✓</u>	<u>✓</u>						
4	<u>4</u>					<u>✓</u>	<u>✓</u>						
5	<u>5</u>					<u>✓</u>	<u>✓</u>						
6													
7													
Custody Record MUST be Signed	Relinquished by:		Date/Time:		Received by:					Date/Time:			
	<u>Chet Barker</u>		<u>3-29-13</u> <u>1:30 PM</u>		<u>[Signature]</u>					<u>3/29/13</u> <u>1:30 PM</u>			
Sample Disposal:			Return to client:			Lab disposal:			Log# <u>584</u>				

ID # WYSL-22434

Permit # WYR-65002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

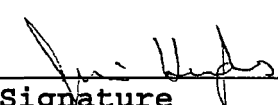
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 03/29/13
Date Received: 03/29/13
Sample Location: Zone C
Sample Matrix: Compost

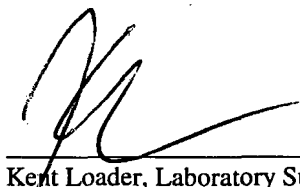
Sampled By: CB
Date Reported: 04/10/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 04/01/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	81.9	45.9	NA
2	91.2	26.1	NA
3	88.1	37.1	NA
4	87.1	42.7	NA
5	90.3	37.4	NA
6	85.1	49.2	NA
7	84.7	51.9	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

4-10-13

Date:

Dry Creek WRF Laboratory
For TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 2-29-13 **Time:** 1:30 ☐ AM ☒ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 3-29-13 | Time: 1:30 | ☐ AM ☒ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 3-29-13] Time: 11:30] ☐ AM ☒ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 3-29-13 Time: 1:30 ☐ AM ☒ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7] Date: 3-29-13 Time: 1:30] ☐ AM ☒ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Bader Date/Time: 3-29-13 / 1:30pm

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 6-28-13 | Time: 3 | ☐ AM ☒ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chat Poupell</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>Resolids</u> <u>Zone C 1-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time												
1	<u>Zone C Row 1</u>		<u>3-29-13</u>	<u>12:30 PM</u>												
2	<u>2</u>															
3	<u>3</u>															
4	<u>4</u>															
5	<u>5</u>															
6	<u>6</u>															
7	<u>7</u>															
Custody Record MUST be Signed			Relinquished by: <u>Chat Poupell</u>		Date/Time: <u>3-29-13 1:30 PM</u>		Received by: <u>[Signature]</u>					Date/Time: <u>3/29/13 1:30 PM</u>				
			Sample Disposal: _____		Return to client: _____		Lab disposal: _____					Log# <u>603</u>				

ID # WVCL-22924

Permit # WVCL-60002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

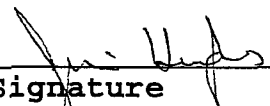
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \frac{\text{VS in} - \text{VS out}}{\text{VS in} - ((\text{VS in} * \text{VS out}))}) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

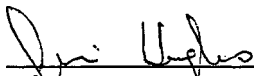
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature
Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 01/31/13
Date Received: 01/31/13
Sample Location: Zone C
Sample Matrix: Compost

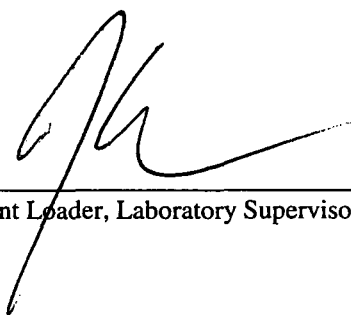
Sampled By: CB
Date Reported: 03/04/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 02/12/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	81.8	47.2	NA
2	82.7	51.9	NA
3	87.1	51.6	NA
4	87.4	39.0	NA
5	85.6	51.6	NA
6	85.9	44.9	NA
7	85.0	59.6	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 1-31-13 **Time:** 10:20 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 1-31-13] Time: 10:20] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 1-31-13 | Time: 10:20 | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

1-31-13^{CB}

Zone: C Rows: 1 - 7 Date: ~~10/20~~ Time: 10120 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: 6 Rows: 1 - 7 Date: 1-31-13 Time: 10:20 ☒ AM ☐ PM

Project Name: Biosolids

Location: Dry Creek WRF

Address: 8911 Camp Stool Rd

City: Cheyenne] State: WY] Zip Code: 82007

Samples Collected by: Chet Babul [Date/Time: 1-31-13/10:20AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF

Address: 8911 Camp Stool Rd.

City: Cheyenne] State: WY] Zip Code: 82007

Name of Analyst: _____

This Certification is signed by: _____

Date: _____] Time: _____] ☐ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Day Creek WRF</u>			Contact Name: <u>Chet Barber</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>Biosolids</u> <u>Zone C Row 1-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time												
1	<u>Zone C Row 1</u>		<u>1-31</u> <u>13</u>	<u>9:15</u> <u>AM</u>	<u>10/1/13</u>	<u>10/1/13</u>								<u>Not Grind</u>	<input checked="" type="checkbox"/>	
2	<u>2</u>															
3	<u>3</u>															
4	<u>4</u>															
5	<u>5</u>															
6	<u>6</u>															
7	<u>7</u>														<input checked="" type="checkbox"/>	
Custody Record MUST be Signed			Relinquished by: <u>Chet Barber</u>			Date/Time: <u>1-31-13</u> <u>10:20 AM</u>			Received by: _____					Date/Time: _____		
			Sample Disposal: _____			Return to client: _____			Lab disposal: _____					Log# <u>555</u>		

ID # WYSL-22934

Permit # WYR 65002

Copies to: **White** - Book in Laboratory **Yellow** - Laboratory Hard Copy **Pink** - Client

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: Wyo] Zip Code: 82007
Samples Collected by: Chet Barber] Date/Time: 7-31-13/1030AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: Wyo] Zip Code: 82007
Name of Analyst: Kent Johnson
This Certification is signed by: [Signature]

Date: 6-28-13] Time: 0800] ☒ AM ☐ PM

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

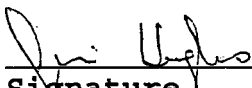
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

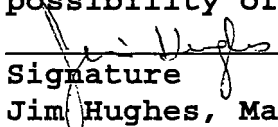
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 01/31/13
Date Received: 01/31/13
Sample Location: Zone D
Sample Matrix: Compost

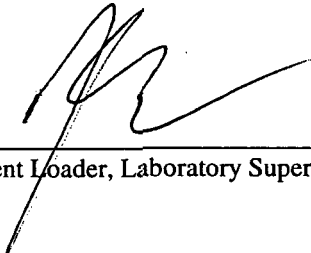
Sampled By: CB
Date Reported: 03/04/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 02/06/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	87.6	35.2	NA
2	89.5	35.7	NA
3	86.2	48.2	NA
4	88.7	43.3	NA
5	85.2	46.6	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 1-31-13 **Time:** 10:20 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 1-31-13] Time: 10:20] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 1-31-13 | Time: 10:20 | ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: 10 Rows: 1 - 5 Date: 1-31-13 Time: 10:20 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: 10 Rows: 1-5 Date: 1-31-13 Time: 10:20 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barber | Date/Time: 1-31-13/10:20 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 6-28-13 | Time: 0800 | ☒ AM ☐ PM

Attachment: #4.


Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out})) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 01/31/13
Date Received: 01/31/13
Sample Location: Zone E
Sample Matrix: Compost


Sampled By: CB
Date Reported: 03/04/13
Date Fecal Analyzed: NA
Date Solids Analyzed: 02/06/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	82.0	45.0	NA
2	83.5	46.2	NA
3	88.3	38.2	NA
4	83.8	44.6	NA
5	80.7	48.3	NA
6	88.2	42.4	NA
7	87.7	40.9	NA
8	83.4	43.6	NA
9	89.6	45.6	NA
10	87.2	45.7	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

3/5/13

Date:

Dry Creek WRF Laboratory
For TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 1-31-13 **Time:** 10:20 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 1-31-13 | Time: 10:20 | ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 1-31-13 | Time: 10:20 | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 10 Date: 1-31-13 Time: 10:20 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1 - 10 Date: 1-31-13 Time: 10:20 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stair Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barber [Date/Time: 1-31-13/10:20 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stair Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 6-28-13 | Time: 6:00 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Day Creek Wt</u>				Contact Name: <u>Chet Houbell</u>				Sampler's Name (if other than Contact): _____									
Report Required For: <u>Phospholids</u> <u>Zone E Rows 1-7</u>				ANALYSIS REQUESTED Number of Containers _____ Sample Type _____ A W S V B O _____ Air Water _____ Soils/Solids _____ Vegetation _____ Bioassay _____ Other _____ MATRIX <u>TSVS</u>				How Preserved HNO ₃ _____ H ₂ SO ₄ _____ 4°C _____ HCL _____ None _____		Sample Type Grab or Composite _____		Other Information (pH, Field Analysis, etc.) _____		Analysis Completed Yes / No (Lab use only) _____			
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date		Collection Time											
1 <u>Zone E Row 1</u>				1-31-13		10:10 AM		1 Plastic Bag								Yes	
2																	
3																	
4																	
5																	
6																	
7																	
Custody Record MUST be Signed				Relinquished by: <u>Chet Houbell</u>				Date/Time: <u>1-31-13</u> <u>10:20 AM</u>				Received by: _____				Date/Time: _____	
				Sample Disposal: _____				Return to client: _____				Lab disposal: _____				Log# <u>MT 559</u>	

ID # WYSL 22934 Permit # WY 1-66000

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dry Creek WLF</u>			Contact Name: <u>Net Barker</u>			Sampler's Name (if other than Contact): _____								
Report Required For: <u>Biosolids</u> <u>Zone E Rows 8-10</u>				ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX										
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time									
1	<u>Zone E Row 8</u>			<u>10-31-13</u>	<u>10:10 AM</u>	<u>Plastic Bag</u>						<u>WA</u>	<u>Grab</u>	<u>Yes</u>
2	<u>↓ 9</u>			<u>↓</u>	<u>↓</u>	<u>Dry Bag</u>						<u>↓</u>	<u>↓</u>	
3	<u>↓ 10</u>			<u>↓</u>	<u>↓</u>	<u>↓</u>						<u>↓</u>	<u>↓</u>	
4				<u>↓</u>	<u>↓</u>									
5														
6														
7														
Custody Record MUST be Signed		Relinquished by:			Date/Time:			Received by:				Date/Time:		
		<u>Chet Barker</u>			<u>1-31-13</u> <u>10:20 AM</u>									
		Sample Disposal:			Return to client:			Lab disposal:				Log# <u>570</u>		

ID # WYSL-22934

Permit # WY 6 650007

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

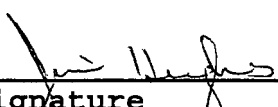
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

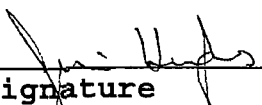
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

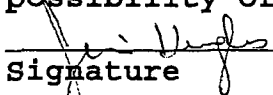
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager

ATTACHMENT: 11

DRY CREEK WRF

DRY SLUDGE ROWS

TEMPERATURE

2013

[illegible]

Time	Date		Time	Date		Time	Date			
1:00 PM	7/16/2013		1:30 PM	7/16/2013		1:45 PM	7/16/2013			
Zone A Rows	Temperature	Temperature	Zone C Rows	Temperature	Temperature	Zone D Rows	Temperature	Temperature		
	Fahrenheit	Celsius		Fahrenheit	Celsius		Fahrenheit	Celsius		
1	86	30	1	90	32.2	1	84	28.9		
2	82	27.8	2	88	31.1	2	88	31.1		
3	88	31.1	3	84	28.9	3	86	30		
4	86	30	4	86	30	4	90	32.2		
5	90	32.2	5	90	32.2	5	88	31.1		
6	86	30	6	92	33.3					
7	88	31.1	7	88	31.1					
8	94	34.4								
9	86	30								
Time	Date									
2:00 PM	7/16/2013									
Zone E Rows	Temperature	Temperature								
	Fahrenheit	Celsius								
1	94	34.4								
2	96	35.6								
3	94	34.4								
4	88	31.1								
5	92	33.3								
6	96	35.6								
7	94	34.4								
8	90	32.2								
9	92	33.3								
Time	Date		Time	Date		Time	Date			
2:30 PM	8/30/2013		3:00 PM	8/30/2013		3:10 PM	8/30/2013			
Zone A Rows	Temperature	Temperature	Zone C Rows	Temperature	Temperature	Zone D Rows	Temperature	Temperature		
	Fahrenheit	Celsius		Fahrenheit	Celsius		Fahrenheit	Celsius		
1	90	32.2	1	92	33.3	1	96	35.6		
2	86	30	2	94	34.4	2	94	34.4		
3	92	33.3	3	90	32.2	3	88	31.1		
4	88	31.1	4	88	31.1	4	90	32.2		
5	90	32.2	5	96	35.6	5	92	33.3		
6	94	34.4	6	92	33.3					
7	92	33.3	7	90	32.2					
8	88	31.1								
9	90	32.2								
Time	Date						Time	Date		
							3:25 PM	8/30/2013		
							Zone E Rows	Temperature	Temperature	
								Fahrenheit	Celsius	
							1	94	34.4	
							2	90	32.2	
							3	96	35.6	
							4	92	33.3	
							5	92	33.3	
							6	90	32.2	
							7	94	34.4	
							8	92	33.3	
							9	88	31.1	

Time	Date		Time	Date		Time	Date			
2:00 PM	9/25/2013		2:20 PM	9/25/2013		2:40 PM	9/25/2013			
Zone A Rows	Temperature	Temperature	Zone C Rows	Temperature	Temperature	Zone D Rows	Temperature	Temperature		
	Fahrenheit	Celsius		Fahrenheit	Celsius		Fahrenheit	Celsius		
1	72	22.2	1	70	21.1	1	74	23.3		
2	68	20	2	74	23.3	2	70	21.1		
3	74	23.3	3	68	20	3	72	22.2		
4	70	21.1	4	72	22.2	4	76	24.4		
5	72	22.2	5	74	23.3	5	74	23.3		
6	76	24.4	6	70	21.1					
7	74	23.3	7	74	23.3					
8	70	21.1								
9	72	22.2								
Time	Date									
3:00 PM	9/25/2013									
Zone E Rows	Temperature	Temperature								
	Fahrenheit	Celsius								
1	76	24.4								
2	72	22.2								
3	74	23.3								
4	72	22.2								
5	76	24.4								
6	74	23.3								
7	70	21.1								
8	72	22.2								
9	70	21.1								
Time	Date		Time	Date		Time	Date			
1:00 PM	10/28/2013		1:15 PM	10/28/2013		1:30 PM	10/28/2013			
Zone A Rows	Temperature	Temperature	Zone C Rows	Temperature	Temperature	Zone D Rows	Temperature	Temperature		
	Fahrenheit	Celsius		Fahrenheit	Celsius		Fahrenheit	Celsius		
1	52	11.1	1	56	13.3	1	54	12.2		
2	50	10	2	54	12.2	2	52	11.1		
3	54	12.2	3	54	12.2	3	56	13.3		
4	48	8.9	4	52	11.1	4	50	10		
5	50	10	5	56	13.3	5	54	12.2		
6	46	7.8	6	54	12.2					
7	50	10	7	54	12.2					
8	54	12.2								
9	50	10								
Time	Date									
1:45 PM	10/28/2013									
Zone E Rows	Temperature	Temperature								
	Fahrenheit	Celsius								
1	52	11.1								
2	54	12.2								
3	52	11.1								
4	54	12.2								
5	56	13.3								
6	52	11.1								

[illegible]

Attachment: #4.

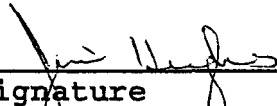
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.


Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

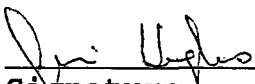
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager

ATTACHMENT: 13

DRY CREEK WRF

TOTAL SOLIDS %

VOLATILE SOLIDS %

FECAL MPN/gm

(6 TIMES A YEAR)

2013



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 12/09/13
Date Received: 12/09/13
Sample Location: Zone E
Sample Matrix: Compost

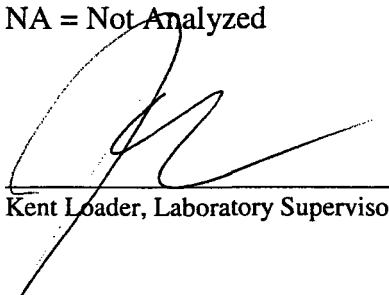
Sampled By: CB
Date Reported: 12/19/13
Date Fecal Analyzed: 12/09/13
Date Solids Analyzed: 12/10/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	85.5	25.8	<380
2	82.0	35.1	<396
3	78.3	37.0	<414
4	75.7	36.4	<429
5	82.1	38.3	395

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor


Date: 12.19.13

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 12-9-13 **Time:** 11:15 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 12-9-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 12-9-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 5 Date: 12-9-13 Time: 11:15 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: F Rows: 1 - 6 | Date: 12-9-13 | Time: 11:15 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barbell [Date/Time: 12-9-13/11:15 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Goaden
This Certification is signed by: [Signature]

Date: 1-7-14] Time: 1] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>D. Cooper WRF</u>			Contact Name: <u>Chet Bonfield</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>Biosolids</u> <u>Zone E Rows 1-5</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time											
1	<u>Zone E Row 1</u>			<u>12-1-13</u>	<u>10:00 AM</u>	<u>18 Plastic</u>	<u>18 Glass</u>	<u>18 Metal</u>	<u>18 Paper</u>	<u>18 Wood</u>	<u>18 Other</u>	<u>18 Unknown</u>	<u>18 None</u>	<u>18 Other</u>	<u>18 Unknown</u>	
2	<u>2</u>															
3	<u>3</u>															
4	<u>4</u>															
5	<u>5</u>															
6																
7																
Custody Record MUST be Signed				Relinquished by: <u>Chet Bonfield</u>			Date/Time: <u>12-1-13</u> <u>11:15 AM</u>			Received by: <u>Mike Wols</u>				Date/Time: <u>12/1/13</u> <u>11:15 AM</u>		
				Sample Disposal:			Return to client:			Lab disposal:			Log# <u>770</u>			

ID # WYSL 22134 Permit # LCV - 60002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

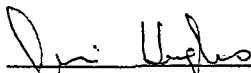
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 12/09/13
Date Received: 12/09/13
Sample Location: Zone D
Sample Matrix: Compost

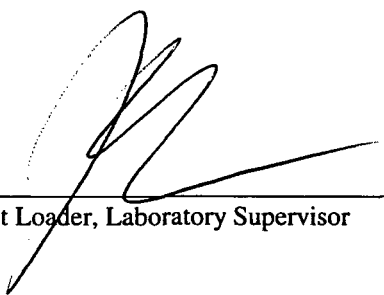
Sampled By: CB
Date Reported: 12/19/13
Date Fecal Analyzed: 12/09/13
Date Solids Analyzed: 12/10/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	83.1	41.0	<391
2	82.4	41.8	<395
3	80.7	47.8	<402
4	79.7	43.3	<408
5	83.5	34.0	<432

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

12-19-13

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 12-9-13 **Time:** 11:15 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 12-9-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 12-9-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: 1 Rows: 1 - 5 Date: 12-9-13 Time: 11:15 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

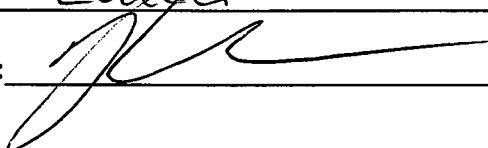
Zone: D Rows: 1 - 5 Date: 12-4-13 Time: 11:15 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barber | Date/Time: 12-9-13/11:15 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: 

Date: 1-7-14 | Time: 1 | ☐ AM ☒ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dave Crankshaft</u> Contact Name: <u>Chet Buckel</u> Sampler's Name (if other than Contact): _____																																																																																																																																													
Report Required For: <u>Biosolids</u> <u>Zone D Rows 1-5</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)																																																																																																																																						
			<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">SAMPLE IDENTIFICATION (Name, Location, etc.)</th> <th>Collection Date</th> <th>Collection Time</th> <th colspan="8"></th> </tr> </thead> <tbody> <tr> <td>1</td> <td><u>Zone D Row 1</u></td> <td><u>12-1-13</u></td> <td><u>10:00 AM</u></td> <td><u>12</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> </tr> <tr> <td>2</td> <td><u>2</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td><u>3</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td><u>4</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td><u>5</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time									1	<u>Zone D Row 1</u>	<u>12-1-13</u>	<u>10:00 AM</u>	<u>12</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	2	<u>2</u>																	3	<u>3</u>																	4	<u>4</u>																	5	<u>5</u>																	6																		7														
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1	<u>Zone D Row 1</u>	<u>12-1-13</u>	<u>10:00 AM</u>	<u>12</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																																																																																																																												
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Custody Record MUST be Signed	Relinquished by: <u>Chet Buckel</u>		Date/Time: <u>12-1-13</u> <u>11:15 AM</u>		Received by: <u>Mike Ward</u>			Date/Time: <u>12/1/13</u> <u>11:15</u>																																																																																																																																					
	Sample Disposal: _____		Return to client: _____		Lab disposal: _____			Log# <u>759</u>																																																																																																																																					

ID # WVG-627311 Permit # WVG-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 12/09/13
Date Received: 12/09/13
Sample Location: Zone C
Sample Matrix: Compost

Sampled By: CB
Date Reported: 12/19/13
Date Fecal Analyzed: 12/09/13
Date Solids Analyzed: 12/10/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	64.2	36.2	<506
2	70.8	36.7	<459
3	70.4	31.7	<461
4	68.9	43.1	2,147
5	63.6	45.7	<511
6	71.4	44.4	<455
7	79.3	44.8	<410

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

12-19-13

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 12-9-13] Time: 11:15] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 12-9-13 | Time: 11:15 | ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 12-9-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ **Date and time of sample**
- ☐ **Name of analyst**
- ☐ **Analytical methods used**
- ☐ **Analyses and calculation results properly documented or verified**
- ☐ **All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).**
- ☐ **Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.**
- ☐ **Analytical quality assurance/quality control (QA/QC) available**
- ☐ **Analytical results available**
- ☐ **Chain of custody record**

Zone: C Rows: 1 - 7 Date: 12-9-13 Time: 11:15 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 12-9-13 Time: 11:15 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Buehl | Date/Time: 12-9-13/11:15 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: ~~Biosolids~~ Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: [Signature]

Date: 1-7-14 | Time: 1 | ☐ AM ☒ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>		Contact Name: <u>Chet Harker</u>		Sampler's Name (if other than Contact): _____											
Report Required For: <u>Biosolids</u> <u>Zone C Rows 1-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time										
1	<u>Zone C Row 1</u>			<u>12-7-13</u>	<u>10:00 AM</u>	<u>18155</u>	<u>TS</u>	<u>VS</u>					<u>NH</u>	<u>G</u>	
2															
3															
4															
5															
6															
7															
Custody Record MUST be Signed		Relinquished by: <u>Chet Harker</u>				Date/Time: <u>12-9-13</u> <u>11:15 AM</u>		Received by: <u>[Signature]</u>				Date/Time: <u>12/9/13</u> <u>11:20 AM</u>			
		Sample Disposal: _____				Return to client: _____		Lab disposal: _____				Log# <u>758</u>			

ID # WYSL-229311 Permit # WY6-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility


H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 12/09/13
Date Received: 12/09/13
Sample Location: Zone A
Sample Matrix: Compost

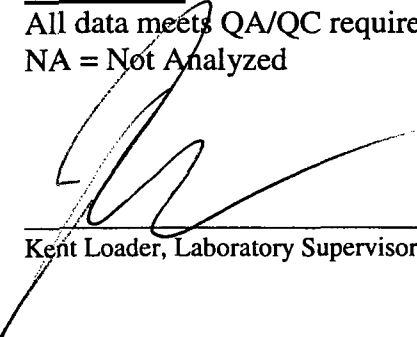
Sampled By: CB
Date Reported: 12/19/13
Date Fecal Analyzed: 12/09/13
Date Solids Analyzed: 12/10/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	71.8	22.9	<453
2	72.1	24.4	<451
3	74.3	30.9	<438
4	69.2	40.0	<470
5	69.1	30.9	<470
6	77.1	31.5	<421
7	78.3	44.0	<414
8	66.9	42.8	<486
9	67.4	45.5	<482

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

12.19.13
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 12-9-13 **Time:** 11:15 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 12-9-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 12-9-13] Time: 11:15] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 12-9-13 Time: 11:15 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: A Rows: 1 - 9 Date: 12-9-13 Time: 11:15 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barber [Date/Time: 12-9-13/11:15 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Logan
This Certification is signed by: [Signature]

Date: 1-7-14 | Time: 1 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Dry Creek WLF

Client's Name: _____			Contact Name: _____			Sampler's Name (if other than Contact): _____								
Report Required For: <i>Biosolids</i> <i>Zone A Rows 1-7</i>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">FCCG1 mpmf</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">DS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">DS</div> </div>						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time											
1 <i>Zone A Row 1</i>			<i>10:00 AM</i>											
2 <i>2</i>														
3 <i>3</i>														
4 <i>4</i>														
5 <i>5</i>														
6 <i>6</i>														
7 <i>7</i>														
Custody Record MUST be Signed		Relinquished by: <i>Det. Barkell</i>		Date/Time: <i>12-4-13 11:15 AM</i>		Received by: <i>Alchell</i>				Date/Time: <i>12/4/13 11:15 AM</i>				
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____				Log# <i>756</i>				

ID # *WVCL 22934*

Permit # *WVCL 650002*

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Cliff Barker</u>			Sampler's Name (if other than Contact): _____											
Report Required For: <u>Biosolids</u> <u>Zenith House 3-9-11</u>				Number of Containers	Sample Type	ANALYSIS REQUESTED								How Preserved	Sample Type	Other Information	Analysis Completed
						AWSVB O											
					Air Water												
					Soils/Solids												
					Vegetation												
					Bioassay												
					Other												
					MATRIX												
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time												
1 <u>Zenith House 3-9-11</u>				<u>12-7</u>	<u>10:00 AM</u>	<u>10:00 AM</u>											
2 <u>↓ ↓ ↓ 9</u>				<u>↓</u>	<u>↓</u>	<u>↓</u>											
3																	
4																	
5																	
6																	
7																	
Custody Record MUST be Signed		Relinquished by: <u>Cliff Barker</u>			Date/Time: <u>12-7-13</u> <u>11:15 AM</u>			Received by: <u>Mike W</u>						Date/Time: <u>12/9/13</u> <u>11:00 AM</u>			
		Sample Disposal:			Return to client:			Lab disposal:						Log# <u>757</u>			

ID # 2014 SL 22931

Permit # WY 6-670002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

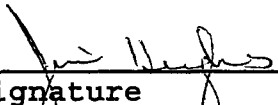
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - ((VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

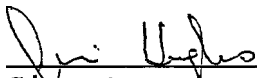
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 10/15/13
Date Received: 10/15/13
Sample Location: Zone E
Sample Matrix: Compost

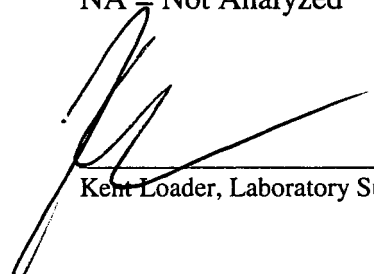
Sampled By: CB
Date Reported: 10/29/13
Date Fecal Analyzed: 10/15/13
Date Solids Analyzed: 10/21/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	58.9	34.8	<551
2	70.0	35.4	<463
3	60.5	35.8	<537
4	56.9	36.8	<571
5	59.6	36.1	<545
6	64.8	34.7	<501

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

10.29.13
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 10-15-13 **Time:** 11:00 **☒ AM ☐ PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 10-15-13] Time: 11:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 10-15-13 Time: 11:00 ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 6 Date: 10-15-13 Time: 11:00 ☒ AM ☐ PM

Analytical Sample Containers

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1 - 6 Date: 10-15-13 Time: 11:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Babin | Date/Time: 10-15-13/11:00AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: [Signature]

Date: 10-31-13 | Time: 9 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Art</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Bioassay</u> <u>Zone 1 - 6 Rows</u>			Number of Containers Sample Type AWS V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <u>fecal coliform</u> <u>TSS</u> <u>UV</u>					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1 <u>Zone Row 1</u>			<u>10-11-12</u>	<u>10:30 AM</u>								
2 <u>2</u>												
3 <u>3</u>												
4 <u>4</u>												
5 <u>5</u>												
6 <u>6</u>												
7												
Custody Record MUST be Signed	Relinquished by: <u>Art</u>		Date/Time: <u>10-11-12</u> <u>11:00 AM</u>		Received by: <u>Michael</u>					Date/Time: <u>10/11/12</u> <u>11:30 AM</u>		
	Sample Disposal: _____		Return to client: _____		Lab disposal: _____					Log# <u>759</u>		

ID # 221211

Permit # WY-6-85002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.


Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

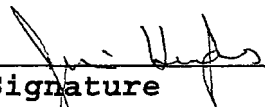
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

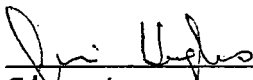
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

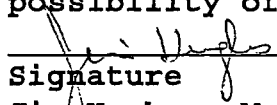
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 10/14/13
Date Received: 10/14/13
Sample Location: Zone D
Sample Matrix: Compost

Sampled By: CB
Date Reported: 10/29/13
Date Fecal Analyzed: 10/14/13
Date Solids Analyzed: 10/21/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	65.4	33.8	<497
2	65.1	40.9	<499
3	68.1	44.2	<477
4	60.8	33.8	<535
5	65.5	36.5	<495

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor


Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 10-14-13 **Time:** 11:00 A 27 ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 10-14-13] Time: 11:00] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 10-14-13] Time: 11:00 AM] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 10-14-13 Time: 11:00 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. ** **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

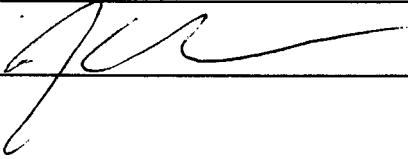
Zone: 1 Rows: 1 - 5 Date: 10-14-13 Time: 11:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Bunker [Date/Time: 10/14/13]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Leader
This Certification is signed by: 

Date: 10-31-13 | Time: 9 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 8 of 8

Client's Name: <u>Dry Creek WPA</u>		Contact Name: <u>Chet Barber</u>		Sampler's Name (if other than Contact): _____												
Report Required For: <u>Row</u> <u>Biosolids Zone D1-5</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time												
1	<u>Zone D - Row 1</u>		<u>10-14-13</u>	<u>9:30 AM</u>												
2	<u>2</u>															
3	<u>3</u>															
4	<u>4</u>															
5	<u>5</u>															
6																
7																
Custody Record MUST be Signed	Relinquished by: <u>Chet Barber</u>			Date/Time: <u>10-14-13</u> <u>11:00 AM</u>			Received by: <u>Alexander</u>			Date/Time: <u>10/14/13</u> <u>11:05 AM</u>						
	Sample Disposal: _____			Return to client: _____			Lab disposal: _____			Log# <u>758</u>						

ID # 11/134-22734

Permit # WV6-65002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

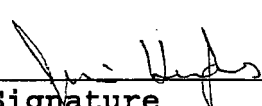
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average (Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

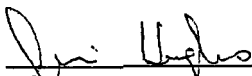
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

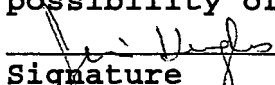
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 10/14/13
Date Received: 10/14/13
Sample Location: Zone C
Sample Matrix: Compost

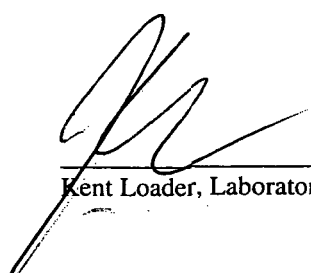
Sampled By: CB
Date Reported: 10/24/13
Date Fecal Analyzed: 10/14/13
Date Solids Analyzed: 10/21/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	60.9	33.5	<533
2	66.6	27.1	<487
3	60.7	29.7	<535
4	64.9	33.7	<541
5	67.9	35.0	<572
6	59.4	37.6	602
7	57.0	41.4	<546

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

10.29.13
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 10-14-13] Time: 11:00] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 10-14-13] Time: 11:00] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 10-14-13] Time: 11:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 10-14-13 Time: 11:00 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

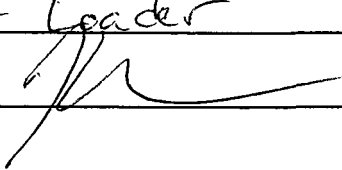
Zone: C Rows: 1 - 7 Date: 10-14-13 Time: 11:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Baikul [Date/Time: 10-14-13/11:00 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: 

Date: 10-31-13] Time: 9] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 23

Client's Name: <u>Dry Creek WRS</u>		Contact Name: <u>Chet Barkell</u>		Sampler's Name (if other than Contact): _____															
Report Required For: <u>Biosolids Zone A Rows 8-9</u> <u>Biosolids Zone C Rows 1-5</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX		ANALYSIS REQUESTED Fecal coliform TSS ULS						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None		Sample Type Grab or Composite		Other Information (pH, Field Analysis, etc.)		Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date		Collection Time													
1 Zone A Row 8				10-14-13		9:30 AM		12-11-13 Biosolids											
2 1 1 1 9				✓		✓		↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓											
3 Zone C Row 1				✓		✓		↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓											
4 1 1 1 2				✓		✓		↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓											
5 1 1 1 3				✓		✓		↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓											
6 1 1 1 4				✓		✓		↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓											
7 1 1 1 5				✓		✓		↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓											
Custody Record MUST be Signed		Relinquished by: <u>Chet Barkell</u>				Date/Time: <u>10-14-13</u> <u>11:00 AM</u>				Received by: <u>Mehe Ural</u>				Date/Time: <u>10/14/13</u> <u>11:05 AM</u>					
		Sample Disposal: _____				Return to client: _____				Lab disposal: _____				Log# <u>757</u>					

ID # WVSL-27934 Permit # WV G-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

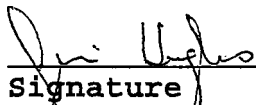
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

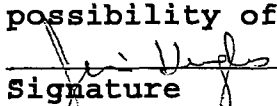
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 10/14/13
Date Received: 10/14/13
Sample Location: Zone A
Sample Matrix: Compost

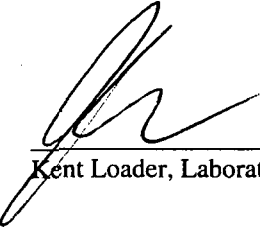
Sampled By: CB
Date Reported: 10/24/13
Date Fecal Analyzed: 10/14/13
Date Solids Analyzed: 10/21/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	67.1	22.6	484
2	62.9	23.3	<517
3	65.2	26.4	<498
4	67.0	39.8	<485
5	59.4	33.2	<546
6	49.0	51.7	<663
7	52.8	40.4	<615
8	57.6	35.2	625
9	54.0	45.1	<601

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

10.29.13

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 10-14-13] Time: 11:00] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 10-14-13] Time: 11:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 10-14-13 | Time: 11:00 | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 10-14-13 Time: 11:00 ☒ AM ☐ PM

Analytical Sample Containers

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: A Rows: 1 - 9 Date: 10-14-13 Time: 11:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Baiken [Date/Time: 10-14-13/11:00 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Loder
This Certification is signed by: [Signature]

Date: 10-31-13 | Time: 9 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Barkell</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Biosolids</u> <u>Zone A Rows 1-7</u>			Number of Containers Sample Type A W S V B O <u>Air Water</u> <u>Soils/Solids</u> <u>Vegetation</u> <u>Bioassay</u> <u>Other</u> MATRIX	ANALYSIS REQUESTED					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
				<u>Fecal Coliform</u>	<u>F₃</u>	<u>U.S.</u>						
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1	<u>Zone A Row 1</u>		<u>10-14-13</u>	<u>7:30 AM</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	
2	<u>2</u>		<u>1</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	
3	<u>3</u>				<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	
4	<u>4</u>				<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	
5	<u>5</u>				<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	
6	<u>6</u>				<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	
7	<u>7</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	
Custody Record MUST be Signed	Relinquished by: <u>Chet Barkell</u>				Date/Time: <u>10-14-13</u> <u>11:00 AM</u>		Received by: <u>Mike Ward</u>				Date/Time: <u>10/14/13</u> <u>11:57</u>	
	Sample Disposal: _____				Return to client: _____				Lab disposal: _____			

ID # WV-22134

Permit # WV-6-6002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dry Creek WRS</u>			Contact Name: <u>Chet Bumpell</u>			Sampler's Name (if other than Contact): _____									
Report Required For: <u>Biosolids Zone A Rows 8-9</u> <u>Biosolids Zone C Rows 1-5</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED							How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time											
1	<u>Zone A Row 8</u>		<u>10-14-13</u>	<u>9:30 AM</u>											
2	<u>Zone A Row 9</u>		<u>✓</u>	<u>✓</u>											
3	<u>Zone C Row 1</u>		<u>✓</u>	<u>✓</u>											
4	<u>Zone C Row 2</u>		<u>✓</u>	<u>✓</u>											
5	<u>Zone C Row 3</u>		<u>✓</u>	<u>✓</u>											
6	<u>Zone C Row 4</u>		<u>✓</u>	<u>✓</u>											
7	<u>Zone C Row 5</u>		<u>✓</u>	<u>✓</u>											
Custody Record MUST be Signed	Relinquished by:			Date/Time:		Received by:					Date/Time:				
	<u>Chet Bumpell</u>			<u>10-14-13</u> <u>11:00 AM</u>		<u>Mike Wal</u>					<u>10/14/13</u> <u>11:05 AM</u>				
Sample Disposal:			Return to client:			Lab disposal:					Log# <u>757</u>				

ID # WVSL-27934 Permit # WV G-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - ((\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

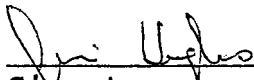
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08/13/13
Date Received: 08/13/13
Sample Location: Zone E
Sample Matrix: Compost

Sampled By: CB
Date Reported: 08/27/13
Date Fecal Analyzed: 08/13/13
Date Solids Analyzed: 08/20/13
Analyst(s): mw

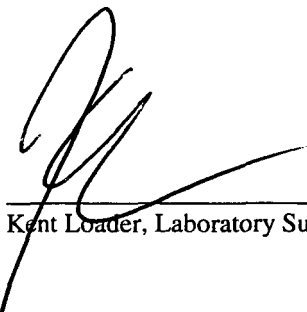
EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	77.1	39.4	<421
2	75.6	37.1	<429
3	70.6	39.0	<460
4	80.2	37.8	<405
5	82.9	39.6	<392
6	80.9	39.7	<402
7	85.2	40.8	<381
8	84.6	36.9	<384
9	62.4	41.8	<521

Com

ments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

8.27.13
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 8-13-13] Time: 10:05] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 8-13-13 | Time: 10:05 | ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of samples analysis
- ☐ Name of analyst
- ☐ All analyses are reported on dry weight basis
- ☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Date: 8-13-13] Time: 10:05] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of sample

☐ Name of analyst

☐ Analytical methods used

☐ Analyses and calculation results properly documented or verified

☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).

☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Zone: E Rows: 1 - 9 Date: 8-13-13 Time: 10:05 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1 - 9 Date: 8-13-13 Time: 10:05 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barber | Date/Time: 8-13-13/11:05 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Lorch
This Certification is signed by: [Signature]

Date: 10-29-13 | Time: 8 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>				Contact Name: <u>Chet Brubaker</u>				Sampler's Name (if other than Contact): _____							
Report Required For: <u>Biocobli6s</u> <u>Zone E Row 1-7</u>				ANALYSIS REQUESTED Number of Containers _____ Sample Type _____ A W S V B O _____ Air Water _____ Soils/Solids _____ Vegetation _____ Bioassay _____ Other _____ MATRIX _____				How Preserved HNO ₃ _____ H ₂ SO ₄ _____ 4°C _____ HCL _____ None _____		Sample Type Grab or Composite _____		Other Information (pH, Field Analysis, etc.) _____		Analysis Completed Yes / No (Lab use only) _____	
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time											
1	<u>Zone E Row 1</u>		<u>8-13-13</u>	<u>9:15 AM</u>	<u>10/10/13</u>		<u>1346</u>		<u>Dry Creek</u>		<u>WRF</u>		<u>Grab</u>		
2															
3															
4															
5															
6															
7															
Custody Record MUST be Signed			Relinquished by:		Date/Time:		Received by:				Date/Time:				
			<u>Chet Brubaker</u>		<u>8-13-13</u> <u>10:06 AM</u>		<u>Mike W...</u>				<u>8/13/13</u> <u>10:10 AM</u>				
Sample Disposal:			Return to client:			Lab disposal:			Log# <u>737</u>						

ID # WV/SI-22934 Permit # WY 6 650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 22 of 22

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Barber</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Biosolids</u> <u>Zone E Rows 8-9</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <u>Fecal imp</u> <u>TS</u> <u>DS</u>				How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1 <u>Zone E Row 8</u>			<u>8-13</u>	<u>9:15</u>	<u>18 bags</u>				<u>WAF</u>	<u>Grab</u>		
2 <u>↓ ↓ ↓ 9</u>			<u>↓</u>	<u>↓</u>	<u>5 bags</u>				<u>↓</u>	<u>↓</u>		
3												
4												
5												
6												
7												
Custody Record MUST be Signed	Relinquished by: <u>Chet Barber</u>		Date/Time: <u>8-13-13</u> <u>10:05 AM</u>		Received by: <u>[Signature]</u>				Date/Time: <u>8/13/13</u> <u>1:22</u>			
	Sample Disposal: _____		Return to client: _____		Lab disposal: _____				Log# <u>738</u>			

ID # WYGL-22434 Permit # WYGL-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

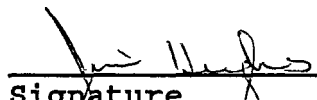
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

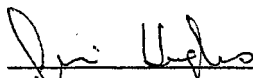
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature
Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08/13/13
Date Received: 08/13/13
Sample Location: Zone D
Sample Matrix: Compost

Sampled By: CB
Date Reported: 08/27/13
Date Fecal Analyzed: 08/13/13
Date Solids Analyzed: 08/20/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	79.2	47.8	455
2	60.4	41.9	<538
3	69.3	30.8	<468
4	69.6	41.0	<467
5	63.8	44.2	<509

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed

Kent Loader, Laboratory Supervisor

8.27.13

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 8-13-13 **Time:** 10:05 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 8-13-13] Time: 10:05] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 8-13-13] Time: 10:05] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: 0 Rows: 1 - 7 Date: 8-13-13 Time: 10:05 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: D Rows: 1 - 7 Date: 8-13-13 Time: 10:05 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barkill | [Date/Time: 8-13-13 / 10:45 Am]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Goch
This Certification is signed by: [Signature]

Date: 10.29.13 | Time: 8 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Barber</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Biosolids</u> <u>Zone D Row 1-5</u>			Number of Containers Sample Type AWS V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1	<u>Zone D Row 1</u>		<u>8-13-13</u>	<u>9:11 AM</u>	<u>10/105</u>	<u>10/105</u>	<u>10/105</u>	<u>10/105</u>	<u>10/105</u>	<u>10/105</u>	<u>10/105</u>	<u>10/105</u>
2	<u>2</u>											
3	<u>3</u>											
4	<u>4</u>											
5	<u>5</u>											
6												
7												
Custody Record MUST be Signed	Relinquished by:		Date/Time:		Received by:					Date/Time:		
	<u>Chet Barber</u>		<u>8-13-13 10:05 AM</u>		<u>Alene Wulf</u>					<u>8/13/13</u>		
Sample Disposal:			Return to client:			Lab disposal:			Log# <u>735</u>			

ID # 10-105-10341 Permit # WY 6-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

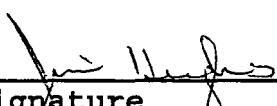
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

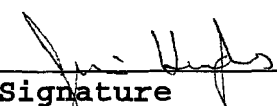
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

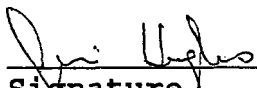
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08/20/13
Date Received: 08/20/13
Sample Location: Zone C
Sample Matrix: Compost

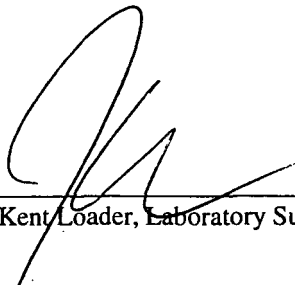
Sampled By: CB
Date Reported: 10/15/13
Date Fecal Analyzed: 08/20/13
Date Solids Analyzed: 08/20/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	69.0	38.8	<471
2	76.0	33.5	1,066
3	81.7	47.3	<398
4	70.9	49.3	<459
5	85.7	41.9	<379
6	81.3	46.9	<400
7	74.7	51.1	<434

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

10.24.13

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 8-20-13 **Time:** 9:20 AM ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)

certification statement signed with each laboratory analytical report:

1. Pathogen reduction

**2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.**

3. Management Practices

4. Site restrictions

☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.

☐ Chain of custody recorded

Date: 8-20-13] Time: 9:20] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 8-20-13 | Time: 9:20 | ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 8-20-13 Time: 9:20 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1-7 Date: 8-20-13 Time: 9:20 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barber [Date/Time: 8-20-13 / 9:20 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Logg
This Certification is signed by: [Signature]

Date: 10-29-13] Time: 8] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Day Creek WRF</u>		Contact Name: <u>Chet Barber</u>		Sampler's Name (if other than Contact): _____													
Report Required For: <u>Biosolids</u> <u>Zone C Rows 1-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time														
1 <u>Zone C Row 1</u>		<u>8-20-13</u>	<u>9:00 AM</u>	<u>1800</u>	<u>1800</u>	<u>1800</u>	<u>1800</u>	<u>1800</u>	<u>1800</u>	<u>1800</u>	<u>1800</u>	<u>1800</u>	<u>1800</u>	<u>1800</u>	<u>1800</u>	<u>1800</u>	<u>Yes</u>
2 <u>2</u>																	
3 <u>3</u>																	
4 <u>4</u>																	
5 <u>5</u>																	
6 <u>6</u>																	
7 <u>7</u>																	
Custody Record MUST be Signed		Relinquished by: <u>Chet Barber</u>		Date/Time: <u>8-20-13</u> <u>7:20 AM</u>		Received by: <u>[Signature]</u>										Date/Time: <u>8/20/13</u> <u>1:40</u>	
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____										Log# <u>739</u>	

ID # WYSL-22734 Permit # WY G 650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

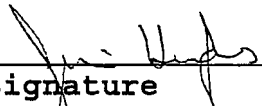
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

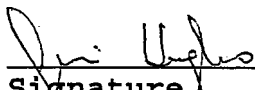
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08/13/13
Date Received: 08/13/13
Sample Location: Zone A
Sample Matrix: Compost

Sampled By: CB
Date Reported: 08/27/13
Date Fecal Analyzed: 08/13/13
Date Solids Analyzed: 08/20/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	83.7	24.6	<388
2	68.9	23.3	<472
3	73.1	26.7	<444
4	63.0	49.5	1,143
5	71.6	36.4	<454
6	65.2	46.8	<498
7	75.8	36.3	<428
8	79.5	52.7	<409
9	72.6	50.0	<447

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

8.27.13
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 8-13-13 | Time: 10:05 | ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 8-13-13 | Time: 10:05 | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 8-13-13] Time: 10:05] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 8-13-13 Time: 10:05 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. ** **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: A Rows: 1-9 Date: 8-13-13 Time: 10:05 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Buhell] Date/Time: 8-13-13/10:05 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Loebl
This Certification is signed by: [Signature]

Date: 10-29-13] Time: 8] ☒ AM ☐ PM

Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>City of Cheyenne</u>			Contact Name: <u>John P. Smith</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>100% 1.6</u> <u>Zone A Riser - 7'</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Fecal Coliform</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Coliform</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Nitrate</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Nitrite</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Ammonia</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">pH</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">DO</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">BOD</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TSS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">SOD</div> </div>					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1	Zone A Riser 1	8-13-2013	7:11 AM									
2	Zone A Riser 2	8-13-2013										
3	Zone A Riser 3											
4	Zone A Riser 4											
5	Zone A Riser 5											
6	Zone A Riser 6											
7	Zone A Riser 7											
Custody Record MUST be Signed			Relinquished by:		Date/Time:		Received by:			Date/Time:		
			<u>John P. Smith</u>		<u>8-13-2013</u> <u>10:05 AM</u>		<u>[Signature]</u>			<u>10:10 AM</u>		
Sample Disposal:			Return to client:			Lab disposal:			Log# <u>734</u>			

ID # 100-201301

Permit # WY 6-010001

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dr. Cook-WRF</u>			Contact Name: <u>Chet Bonnell</u>			Sampler's Name (if other than Contact): _____									
Report Required For: <u>Zone A 8-9</u> <u>Biosolids</u>				ANALYSIS REQUESTED Number of Containers _____ Sample Type _____ A W S V B O _____ Air Water _____ Soils/Solids _____ Vegetation _____ Bioassay _____ Other _____ MATRIX _____				How Preserved HNO ₃ _____ H ₂ SO ₄ _____ 4°C _____ HCL _____ None _____		Sample Type Grab or Composite _____		Other Information (pH, Field Analysis, etc.) _____		Analysis Completed Yes / No (Lab use only) _____	
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time											
1 <u>Zone A Row 8</u>			<u>8-13</u>	<u>9:16</u>	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Fecal Impurity</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">VS</div> </div>										
2 <u>↓ ↓ ↓ 9</u>			<u>↓</u>	<u>↓</u>											
3															
4															
5															
6															
7															
Custody Record MUST be Signed			Relinquished by: <u>Chet Bonnell</u>			Date/Time: <u>8-13-2013</u> <u>10:00 AM</u>			Received by: <u>Mike Ward</u>			Date/Time: <u>8/13/13</u> <u>1:00</u>			
			Sample Disposal: _____ Return to client: _____ Lab disposal: _____						Log# <u>735</u>						

ID # WYGL-27734 Permit # WYGL-60002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.


Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.


Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

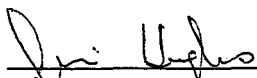
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 06/17/13
Date Received: 06/17/13
Sample Location: Zone E
Sample Matrix: Compost

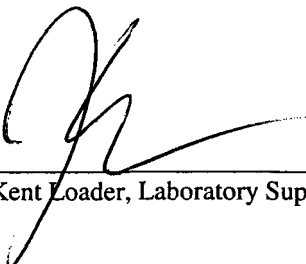
Sampled By: CB
Date Reported: 08/07/13
Date Fecal Analyzed: 06/17/13
Date Solids Analyzed: 06/20/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	88.9	47.1	<366
2	87.5	38.8	<371
3	86.5	43.7	<376
4	88.7	37.8	<366
5	91.3	34.8	<356
6	86.4	43.4	<376
7	90.6	34.0	<358
8	88.8	41.3	<366
9	87.4	47.0	<372

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

8-7-13

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 6-17-13 | Time: 10:40 | ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 6-17-13 | Time: 10:40 | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 6-17-13] Time: 10:40] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 9 Date: 6-13-13 Time: 10:40 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: F Rows: 1-9 Date: 6-17-13 Time: 10:40 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Bunker | Date/Time: 6-17-13/10:40AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Logg
This Certification is signed by: [Signature]

Date: 10.29.13 | Time: 8 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Barber</u>			Sampler's Name (if other than Contact): _____									
Report Required For: <u>Biosolids</u> <u>Zone E Rows - 7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time											
1	<u>Zone E Row 1</u>		<u>6-17-13</u>	<u>10:20 AM</u>	<u>Plastic bags</u>										
2	<u>2</u>														
3	<u>3</u>														
4	<u>4</u>														
5	<u>5</u>														
6	<u>6</u>														
7	<u>7</u>														
Custody Record MUST be Signed			Relinquished by: <u>Chet Barber</u>			Date/Time: <u>6-17-13</u> <u>10:10 AM</u>			Received by: <u>Mike W</u>				Date/Time: <u>6/17/13</u> <u>1130</u>		
			Sample Disposal: _____			Return to client: _____			Lab disposal: _____			Log# <u>716</u>			

ID # W-162-22731

Permit # W-162-66002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Day Creek WRF</u>			Contact Name: <u>Chet Bandell</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Biosolids</u> <u>Zone E Rows 8-9</u>			Number of Containers Sample Type AWS V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <u>Fecal matter</u> <u>TS</u> <u>VS</u>				How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1 <u>Zone E Rows 8</u>			<u>6-17</u>	<u>10:20</u>								
2 <u>↓ ↓ ↓ ↓</u>			<u>↓</u>	<u>↓</u>								
3												
4												
5												
6												
7												
Custody Record MUST be Signed			Relinquished by: <u>Chet Bandell</u>		Date/Time: <u>6-17-13</u> <u>10:40 AM</u>		Received by: <u>Mike White</u>			Date/Time: <u>6/17/13</u> <u>1:19 PM</u>		
			Sample Disposal: _____ Return to client: _____ Lab disposal: _____								Log# <u>717</u>	

ID # WYSL-22934

Permit # WYCL-65000

Copies to: **White** - Book in Laboratory **Yellow** - Laboratory Hard Copy **Pink** - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

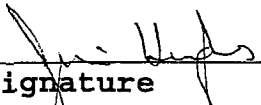
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ($\text{Vol. Solids Reduction} = \frac{\text{VS in} - \text{VS out}}{\text{VS in} - ((\text{VS in} * \text{VS out}))}$) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

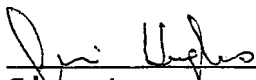
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

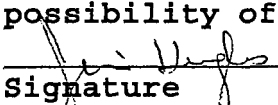
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 06/17/13
Date Received: 06/17/13
Sample Location: Zone D
Sample Matrix: Compost


Sampled By: CB
Date Reported: 08/07/13
Date Fecal Analyzed: 06/17/13
Date Solids Analyzed: 06/20/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	89.1	45.1	<364
2	85.1	47.7	<382
3	88.9	49.2	<366
4	82.8	48.6	<392
5	87.6	37.6	<371

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

8-7-13

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 6-17-13] Time: 10:40] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 6-17-13 | Time: 10:40 | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 6-17-13 | Time: 10:40 | ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 6-17-13 Time: 10:40 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: 0 Rows: 1 - 7 Date: 6-17-13 Time: 10:40 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barber] Date/Time: 6-17-13 / 10:40 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent
This Certification is signed by: [Signature]

Date: 10-29-13] Time: 8] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>				Contact Name: <u>Chet Barker</u>				Sampler's Name (if other than Contact): _____					
Report Required For: <u>Biosolids</u> <u>Zone D Rows 1-5</u>				ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX </div> <div style="width: 40%; text-align: center;"> <u>Fecal matter</u> <u>TS</u> <u>VS</u> </div> <div style="width: 30%;"> How Preserved HNO₃ H₂SO₄ 4°C HCL None </div> </div>				Sample Type Grab or Composite		Other Information (pH, Field Analysis, etc.)		Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time										
1 <u>Zone D Row 1</u>		<u>6-17</u> <u>13</u>	<u>10:00</u> <u>AM</u>	<u>Plastic bag</u> <u>dry solids</u>				<u>NA</u>		<u>Grab</u>			
2 <u>2</u>		<u>13</u>	<u>AM</u>	<u>13</u>				<u>13</u>					
3 <u>3</u>		<u>13</u>	<u>AM</u>	<u>13</u>				<u>13</u>					
4 <u>4</u>		<u>13</u>	<u>AM</u>	<u>13</u>				<u>13</u>					
5 <u>5</u>		<u>13</u>	<u>AM</u>	<u>13</u>				<u>13</u>					
6													
7													
Custody Record MUST be Signed		Relinquished by: <u>Chet Barker</u>		Date/Time: <u>6-17-13</u> <u>10:40 AM</u>		Received by: <u>Alfred White</u>		Date/Time: <u>6/17/13</u> <u>11:00</u>					
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____		Log# <u>715</u>					

ID # WVSL-221311 Permit # WVG-65002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

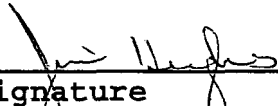
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

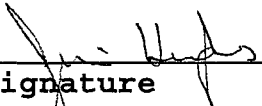
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility


H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

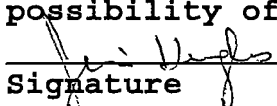
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 06/17/13
Date Received: 06/17/13
Sample Location: Zone C
Sample Matrix: Compost

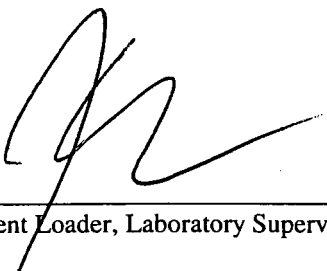
Sampled By: CB
Date Reported: 08/07/13
Date Fecal Analyzed: 6/17/13
Date Solids Analyzed: 06/20/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	66.7	42.0	<487
2	83.4	40.4	<393
3	87.3	36.7	<372
4	87.4	43.2	742
5	88.7	41.1	<366
6	86.5	51.5	<376
7	86.4	52.6	376

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

8-7-13

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 6-17-13] Time: 10:40] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 6-17-13] Time: 10:40] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 6-17-13] Time: 10:40] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 6-17-13 Time: 10:40 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 6-17-13 Time: 10:40 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 CampStool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Babbitt [Date/Time: 6-17-13/10:40 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 CampStool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Goble
This Certification is signed by: [Signature]

Date: 10.29.13 | Time: 8 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Bardsell</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Biosolids</u> <u>Zone C Rows 1-7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <u>Fecal mpn/g</u> <u>TS</u> <u>US</u>					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1	<u>Zone C Row 1</u>		<u>6-17-13</u>	<u>9:40 AM</u>								
2	<u>2</u>											
3	<u>3</u>											
4	<u>4</u>											
5	<u>5</u>											
6	<u>6</u>											
7	<u>7</u>											
Custody Record MUST be Signed			Relinquished by: <u>Chet Bardsell</u>		Date/Time: <u>6-17-13</u> <u>10:40 AM</u>		Received by: <u>Made W</u>			Date/Time: <u>6/17/13</u> <u>1130</u>		
			Sample Disposal: _____ Return to client: _____ Lab disposal: _____									Log# <u>714</u>

ID # WYCL-22934 Permit # WYCL-65002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

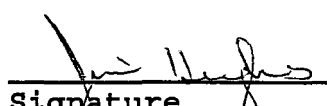
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

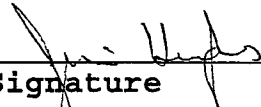
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 04/22/13
Date Received: 04/22/13
Sample Location: Zone E
Sample Matrix: Compost

Sampled By: CB
Date Reported: 05/08/13
Date Fecal Analyzed: 4/22/13
Date Solids Analyzed: 04/22/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	85.3	39.4	<381
2	81.8	42.8	<397
3	83.1	47.7	<391
4	85.9	35.1	<378
5	88.7	32.4	366
6	83.8	43.3	<388
7	86.0	46.7	<378
8	88.8	37.8	<366
9	85.4	49.6	<380

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

5-9-13
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 1-22-13 **Time:** 10:00 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ **Dates and time of samples collected**
- ☐ **Sampling location documented**
- ☐ **Sampling types appropriate**
- ☐ **Sampling volumes recorded**
- ☐ **Name of person sampling**
- ☐ **Types of sampling containers**
- ☐ **Methods of preservation**
- ☐ **Sampling quality assurance/ quality control QA/QC available**
- ☐ **Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)**
- ☐ **Certification statement signed with each laboratory analytical report:**
 - 1. Pathogen reduction**
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.**
 - 3. Management Practices**
 - 4. Site restrictions**
- ☐ **Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.**
- ☐ **Chain of custody recorded**

Date: 4-22-13] Time: 10:00] ☒ **AM** ☐ **PM**

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 4-22-13] Time: 10:00] ☐ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 9 Date: 4-22-13 Time: 10:00 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

4-22-13^{CB}

Zone: E Rows: 1 - 9 Date: 10/00 Time: 10:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stair Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barkul] Date/Time: 4-22-13 / 10:00 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stair Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 6-28-13] Time: 0800] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>		Contact Name: <u>Chad Proffitt</u>		Sampler's Name (if other than Contact): _____															
Report Required For: <u>Zone E Rows 1-7</u> <u>Biosolids</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED							How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)				
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time																
1 <u>Zone E Row 1</u>		<u>4-22-13</u>	<u>0845 AM</u>	<u>Plastic Bag</u>	<u>Fecal coliform</u>	<u>TS</u>	<u>VS</u>												
2																			
3																			
4																			
5																			
6																			
7																			
Custody Record MUST be Signed		Relinquished by:		Date/Time:		Received by:						Date/Time:							
		<u>Chad Proffitt</u>		<u>4-22-13</u> <u>10:00 AM</u>		<u>Michael</u>						<u>4/23/13</u> <u>10:00 AM</u>							
		Sample Disposal:		Return to client:		Lab disposal:						Log# <u>554</u>							

ID # 1411-22934

Permit # WYR-660002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dry Creek WRF</u>				Contact Name: <u>Chet Barden</u>				Sampler's Name (if other than Contact): _____					
Report Required For: <u>Zone E Rows 8-9</u> <u>Biosolids</u>				Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <u>Fecal Imp</u> <u>TS</u> <u>VS</u>				How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time										
1	<u>Zone E Row 8</u>	<u>4-22-13</u>	<u>0845 AM</u>	<u>18451.2</u>	<u>18451.2</u>	<u>18451.2</u>	<u>18451.2</u>	<u>18451.2</u>	<u>18451.2</u>	<u>18451.2</u>	<u>18451.2</u>	<u>18451.2</u>	<u>18451.2</u>
2	<u>↓ ↓ ↓ 9</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
3													
4													
5													
6													
7													
Custody Record MUST be Signed		Relinquished by:		Date/Time:		Received by:				Date/Time:			
		<u>Chet Barden</u>		<u>4-22-13 10:00 AM</u>		<u>Michael</u>				<u>4/22/13 10:00</u>			
		Sample Disposal:		Return to client:		Lab disposal:				Log# <u>695</u>			

ID # WYSL-72934

Permit # WY 6-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

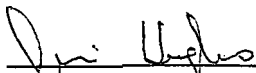
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 04/22/13
Date Received: 04/22/13
Sample Location: Zone D
Sample Matrix: Compost

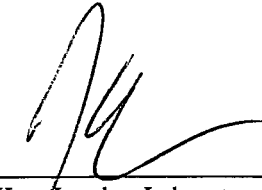
Sampled By: CB
Date Reported: 05/08/13
Date Fecal Analyzed: 4/22/13
Date Solids Analyzed: 04/22/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)


Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	86.1	27.4	<377
2	74.7	39.8	<434
3	85.3	44.3	<381
4	86.9	42.7	<374
5	85.9	39.0	<378

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 4-22-13 **Time:** 10:00 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 4-22-13] Time: 10:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 4-22-13 Time: 10:00 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: 0 Rows: 1 - 5 Date: 4-22-13 Time: 10:00 ☐ AM ☒ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. ** **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

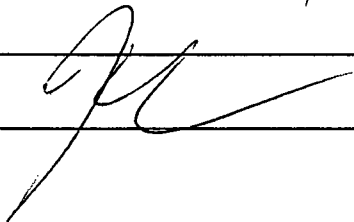
Zone: D Rows: 1 - 5 Date: 4-22-13 Time: 10:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barkul [Date/Time: 4-22-13 10:00 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: lu
This Certification is signed by: 

Date: 6-28-13 | Time: 0800 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u> Contact Name: <u>Chet Barker</u> Sampler's Name (if other than Contact): _____																																																																																																																																																				
Report Required For: <u>Biosolids Zone D Rows 1-5</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <u>Fecal coliform</u> <u>TS</u> <u>US</u>	How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)																																																																																																																																												
			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">SAMPLE IDENTIFICATION (Name, Location, etc.)</th> <th>Collection Date</th> <th>Collection Time</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td><u>Zone D Row 1</u></td> <td><u>4-22-13</u></td> <td><u>0845</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> <td><u>1 Plus 100</u></td> </tr> <tr> <td>2</td> <td><u>2</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> </tr> <tr> <td>3</td> <td><u>3</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> </tr> <tr> <td>4</td> <td><u>4</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> </tr> <tr> <td>5</td> <td><u>5</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> <td><u>↓</u></td> </tr> <tr> <td>6</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time															1	<u>Zone D Row 1</u>	<u>4-22-13</u>	<u>0845</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	<u>1 Plus 100</u>	2	<u>2</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	3	<u>3</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	4	<u>4</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	5	<u>5</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	6																		7														
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ID # WYSL 22934 Permit # WY 650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

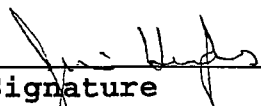
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

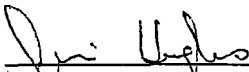
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 04/22/13
Date Received: 04/22/13
Sample Location: Zone C
Sample Matrix: Compost


Sampled By: CB
Date Reported: 05/08/13
Date Fecal Analyzed: 4/22/13
Date Solids Analyzed: 04/22/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	86.2	34.6	<377
2	92.6	23.6	<351
3	88.1	31.6	<369
4	86.2	39.8	<377
5	89.4	35.1	<364
6	85.2	47.7	423
7	86.2	45.7	<377

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

5-9-13

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 4-22-23 **Time:** 10:00 AM ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 4-22-13 | Time: 10:00 | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 4-22-13] Time: 10:00] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of sample

☐ Name of analyst

☐ Analytical methods used

☐ Analyses and calculation results properly documented or verified

☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).

☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 4-22-73 Time: 10:00 ☐ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 4-22-13 Time: 10:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Buehler (Date/Time: 6-22-13/10:00 AM)

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 6-28-13] Time: 0800] ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Art Barkell</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>bioassays</u> <u>Zone C Rows 1-7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED				How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1	<u>Zone C Row 1</u>		<u>4-22-13</u>	<u>0845</u>	<u>bioassay</u>				<u>10/4</u>	<u>G/mb</u>		
2	<u>2</u>											
3	<u>3</u>											
4	<u>4</u>											
5	<u>5</u>											
6	<u>6</u>											
7	<u>7</u>											
Custody Record MUST be Signed			Relinquished by: <u>Art Barkell</u>		Date/Time: <u>4-22-13</u> <u>10:00 AM</u>		Received by: <u>Art Barkell</u>			Date/Time: <u>4/22/13</u> <u>1:00 PM</u>		
			Sample Disposal: _____ Return to client: _____ Lab disposal: _____ Log# <u>592</u>									

ID # 1456-22774

Permit # WYG-650092

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

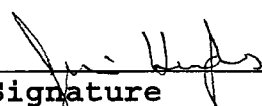
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 02/25/13
Date Received: 02/25/13
Sample Location: Zone E
Sample Matrix: Compost

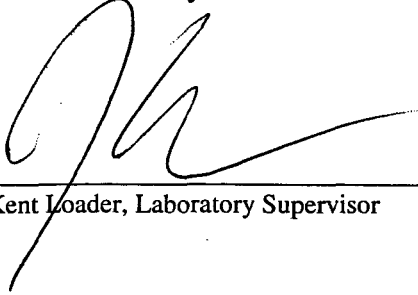
Sampled By: CB
Date Reported: 03/05/13
Date Fecal Analyzed: 02/25/13
Date Solids Analyzed: 02/26/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	79.5	40.6	<409
2	80.5	38.6	<403
3	78.0	46.0	<416
4	84.4	43.3	855
5	85.6	38.3	<380
6	84.6	40.3	383
7	82.8	44.4	<392
8	87.9	35.6	<369
9	83.7	43.7	<388

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor


Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 2-25-13 | **Time:** 10:50 | ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 2-25-13] Time: 10:50] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 2-25-13] Time: 10:50] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 9 Date: 2-25-83 Time: 10:50 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1 - 9 Date: 2-25-18 Time: 10:50 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barkum | Date/Time: 2-25-13/10:50 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 6-28-13 | Time: 0800 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 3

Client's Name: <u>DeVos Creek WRF</u>			Contact Name: <u>Chet / Boudier</u>			Sampler's Name (if other than Contact): _____					
Report Required For: <u>Microbials</u> <u>Zone E Rows 1-7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Fe/Mn/Ni</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Pb</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cd</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cu</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Zn</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cr</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Hg</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">As</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Se</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Mn</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Co</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Ni</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Mo</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">V</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">B</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">O</div> </div>				How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time							
1 <u>Zone E Row 1</u>			<u>2-25-13</u>	<u>9:30 AM</u>	<u>Plastic bag</u>						
2											
3											
4											
5											
6											
7											
Custody Record MUST be Signed	Relinquished by:		Date/Time:		Received by:				Date/Time:		
	<u>Chet Boudier</u>		<u>2-25-13 10:50 AM</u>		<u>Mike Ward</u>				<u>2-25-13 11:00 AM</u>		
Sample Disposal:			Return to client:			Lab disposal:			Log# <u>575</u>		

ID # WY 1 - 27434 Permit # WY 650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 22 of 22

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Ponder</u>			Sampler's Name (if other than Contact):									
Report Required For: <u>Biosolids</u> <u>Zone E Row 2 8-9</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)		
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time											
1 <u>Zone E Row 8</u>			<u>2-25-13</u>	<u>130 AM</u>	<u>Plastic Bagged</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>NA</u>	<u>GAD</u>	
2 <u>↓ ↓ ↓ 9</u>			<u>✓</u>	<u>↓</u>	<u>↓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	
3															
4															
5															
6															
7															
Custody Record MUST be Signed			Relinquished by:		Date/Time:		Received by:					Date/Time:			
			<u>Chet Ponder</u>		<u>2-25-13 10:50 AM</u>		<u>Mike Wad</u>					<u>2/25/13 11:00 AM</u>			
			Sample Disposal:		Return to client:		Lab disposal:					Log# <u>675</u>			

ID # WRA-22934 Permit # WY 6-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

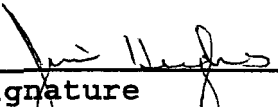
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

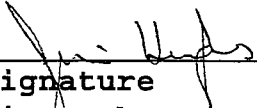
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $\left(\frac{\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out}}{\text{VS in} - ((\text{VS in} * \text{VS out}))} \right)$ (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility


H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 02/25/13
Date Received: 02/25/13
Sample Location: Zone D
Sample Matrix: Compost

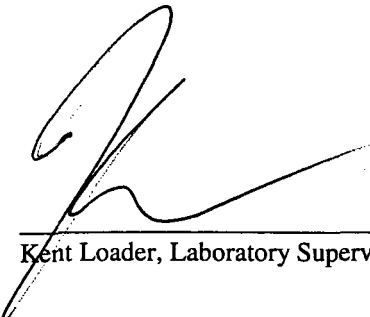
Sampled By: CB
Date Reported: 03/05/13
Date Fecal Analyzed: 02/25/13
Date Solids Analyzed: 02/26/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	86.9	40.5	<374
2	86.6	44.8	<375
3	84.8	44.7	<383
4	87.8	42.3	<370
5	84.7	47.1	<384

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 2-25-13 **Time:** 10:50 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 2-25-13] Time: 10:50] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 2-25-13 Time: 10:50 ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 2-25-13 Time: 10:50 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. ** **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

2-25-13^{CB}

Zone: D Rows: 1-5 Date: 10/5/13 Time: 10:50 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barkul] [Date/Time: 2-25-13/10:30 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: KL
This Certification is signed by: [Signature]

Date: 6-28-13] Time: 0800] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>		Contact Name: <u>Chet Barber</u>		Sampler's Name (if other than Contact): _____												
Report Required For: <u>Biosolids</u> <u>Zone D Rows 1-5</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time											
1 <u>Zone D - Row 1</u>				<u>2-25-13</u>	<u>9:30 AM</u>	<u>1814542</u>								<u>NA</u>	<u>Grab</u>	
2						<u>1300</u>										
3																
4																
5																
6																
7																
Custody Record MUST be Signed		Relinquished by:			Date/Time:			Received by:					Date/Time:			
		<u>Chet Barber</u>			<u>2-25-13</u> <u>10:50 AM</u>			<u>Mike Ward</u>					<u>2-25-13</u>			
		Sample Disposal:			Return to client:			Lab disposal:					Log# <u>574</u>			

ID # 4411 279311

Permit # WY 62002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility

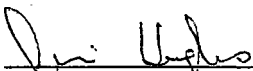
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 02/25/13
Date Received: 02/25/13
Sample Location: Zone C
Sample Matrix: Compost

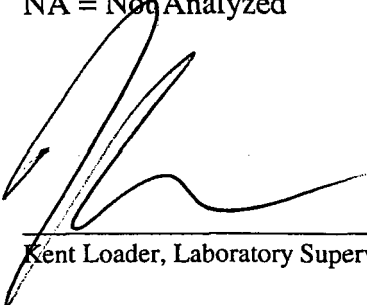
Sampled By: CB
Date Reported: 03/05/13
Date Fecal Analyzed: 02/25/13
Date Solids Analyzed: 02/26/13
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	87.6	35.8	<371
2	85.5	43.6	<380
3	86.7	39.6	<375
4	85.2	45.8	<381
5	86.9	48.8	<374
6	84.2	46.4	<386
7	85.2	54.7	<381

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date: 3/5/13

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 2-25-13 | **Time:** 10:50 | ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 2-25-13] Time: 10:50] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 2-25-13 | Time: 10:50 | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 2-25-13 Time: 10:50 ☐ AM ☒ PM

Analytical Sample Containers

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 2-25-13 Time: 10:50 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barber] Date/Time: 2-25-13/10:50 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 6-28-13] Time: 11:30] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>City of Cheyenne</u>			Contact Name: <u>Chet Howard</u>			Sampler's Name (if other than Contact): _____								
Report Required For: <u>110601.15</u> <u>Zone C 1-7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time										
1	<u>Zone C Row 1</u>		<u>2-25-13</u>	<u>1:30 AM</u>	<u>110601.15</u>	<u>TS</u>	<u>VS</u>					<u>MIT</u>	<u>Grab</u>	
2	<u>2</u>													
3	<u>3</u>													
4	<u>4</u>													
5	<u>5</u>													
6	<u>6</u>													
7	<u>7</u>													
Custody Record MUST be Signed	Relinquished by: <u>Chet Howard</u>			Date/Time: <u>2-25-13</u> <u>10:00 AM</u>		Received by: <u>Chet Howard</u>						Date/Time: _____		
	Sample Disposal: _____			Return to client: _____			Lab disposal: _____						Log# <u>673</u>	

ID # 4441 2734

Permit # 444 AC 0002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #6.

Dry Creek Water Reclamation Facility


H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Signature

Jim Hughes, Manager

Water Reclamation Division

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.


Signature

Jim Hughes, Manager